THE REPUBLIC OF SOUTH SUDAN

NATIONAL EXPANDED PROGRAMME ON IMMUNIZATION MULTI-YEAR PLAN 2018 – 2022

November 2018

Table of Contents

List of Tables

List of Figures

List of Acronyms

AEFI	Adverse Events Following Immunization
AFP	Acute Flaccid Paralysis
AFRO	African Regional Office of the World Health Organization
ARCC	African Regional Certification Committee
BCG	Bacillus-Calmette-Guérin (Tuberculosis vaccine)
BHI	Boma Health Initiative
BPHS	Basic Package of Health Services
CCE	Cold Chain Equipment
CH	Child Health
CHD	County Health Department
cMYP	Comprehensive Multi-Year Plan (for immunization)
cVDPV	Circulating Vaccine Derived Poliovirus
DFID	Department for International Development (United Kingdom)
DHIS	District Health Information System
DPT	Diphtheria-Pertussis-Tetanus Vaccine
EPI	Expanded Program on Immunization
EWARN	Early Warning Alert and Response Network
EVM	Effective Vaccine Management
FBO	Faith-Based Organization
FIC	Fully Immunized Children
GAVI	The Gavi Alliance (formerly The Global Alliance for Vaccines and Immunization)
GDP	Gross Domestic Product
GIVS	Global Immunization Vision and Strategy
GNI	Gross National Income
GVAP	Global Vaccine Action Plan
Hep-B	Hepatitis B Vaccine
Hib	Haemophilus Influenzae Type B
HMIS	Health Management and Information System
HPV	Human Papilloma Virus
HSSP	Health Sector Strategic Plan
HSDP	Health Sector Development Plan
ICC	Inter-Agency Coordination Committee
IDSR	Integrated Disease Surveillance and Response
IEC	Information, Education and Communication
IIP	Immunization in Practice
IMR	Infant Mortality Rate
IPV	Inactivated Polio Vaccine
JRF	WHO-UNICEF Joint Reporting Form
JHPIEGO	Johns Hopkins Program for International Education in Gynecology and Obstetrics (now referred to simply as jhpigo)
KAP	Knowledge Attitude Practice
LB	Live Births
LMIS	Logistics Management Information System
LQA	Lot Quality Assay
MCV	Measles-Containing Vaccine
MDG	Millennium Development Goal
MLM	Mid-Level Management
MNT	Maternal and Neonatal Tetanus

MOH	Ministry of Health
MR	Combined Measles – Rubella Vaccine
NGO	Non-Governmental Organization
NIP	National Immunization Program
NHSP	National Health Strategic Plan
NNT	Neo-Natal Tetanus
NPCC	National Polio Certification Committee
NPEC	National Polio Expert Committee
NPTF	National Polio Task Force
NTLBP	National TB, Leprosy, Buruli Ulcer Program
OPV	Oral Polio Vaccine
PAB	Protected at Birth
PCV	Pneumococcal Conjugate Vaccine
Penta	Pentavalent Vaccine: Diphtheria-Tetanus-Pertussis-Hepatitis B-Haemophilus Influenza Type B
PIRI	Periodic Intensification of Routine Immunization
PHC	Primary Health Care
REC	Reaching Every County/Child/Community
RED	Reaching Every District
Rota	Rotavirus Vaccine
SOP	Standard Operating Procedure
SSHP	South Sudan Health Policy
SHHS	South Sudan Health Household Survey
SIAs	Supplemental Immunization Activities
SSCCSE	South Sudan Centre for Census, Statistics & Evaluation
SSMIS	South Sudan Malaria Indicator Survey
Td	Tetanus-Diphtheria Vaccine
TT	Tetanus Toxoid vaccine
TWG	Technical Working Group
UNOCHA	United Nations Office for Coordination of Humanitarian Affairs
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
VII	Vaccine Independence Initiative
VPD	Vaccine Preventable Diseases
WHO	World Health Organization
WPV	Wild Polio Virus

Foreword

Immunization is a key priority of the basic package of health and nutrition services in South Sudan. Implementation of the first multi-year plan (cMYP) for EPI (2007-2011) and the second cMYP (2012-2016) has accelerated government's efforts to achieve better health for the children and women of South Sudan, thereby contributing to the enhancement of the quality of life and productivity.

An external comprehensive EPI and surveillance review conducted in 2017 provided useful information on best practices, weaknesses, opportunities, and lessons learned over the previous years that formed the basis for the development of this cMYP (2018-2022). The EPI review 2017 documented several achievements namely: immunization policy, practice standards and training manuals that conform to GIVs aspirations; WHO/UNICEF and CDC immunization practice standards have been developed for program use at all levels; establishment of the structures for immunization program management at the national, state and county levels; all vaccines, injection materials, and equipment used at all levels conform to WHO/UNICEF standards/specifications; strong support and collaboration from Development Partners for EPI; interruption of Wild Polio Virus Outbreak and maintaining polio-free status.

In spite of the gains made during the first and second multi-year plans, several challenges in the delivery of EPI services remained which have resulted in a decline of immunization coverage in the period 2012 - 2017. At all levels of the immunization program delivery systems, there are gaps of attaining the required number of qualified human resources coupled with the continuous looting and vandalization of the cold chain equipment especially in Upper Nile and Unity States and these continue to erode the performance of the EPI performance. A lot of staff managing the EPI program have not had any training in the management of the immunization program (MLM training). Poor estimates of vaccine needs, unexplained shortages, high wastage rates, expired vaccines still in stock and misuse of the vaccines remain rampant in the program. Many health facilities do not provide outreach services and supportive supervision has been weak especially at service delivery level and in some instances, where health facilities are supervised, feedback and action points are usually not followed. Various levels of the health/EPI system have no advocacy and communication plans to systematically address the social mobilization issues of the immunization program. There is a systematic effort for demand generation for life-saving services including immunization through a network of 5000 plus community mobilizers covering 77 out of 80 counties of the country.

The process of development of the new comprehensive multi-year plan 2018-2022, has accorded the program and partners an opportunity to reorganize approaches to address the current challenges, to explore opportunities for more efficient delivery of services and to formulate strategies conforming to the Global Vision for Immunization (GIVS) as the country strives to achieve the Sustainable Development Goal of childhood morbidity and mortality reduction and the national goals as articulated in the Health Sector Development Plan. Focus will be made to improve immunization coverage in a rapidly growing population and reaching all unimmunized children in every county; introduction of new and underused vaccines like, pneumococcal, rotavirus MenA and Yellow fever vaccines and maintaining a high quality and sensitive disease surveillance system at all levels in order to detect and respond timely to any vaccine-preventable diseases outbreaks.

Lastly, we pledge full government support for the implementation of the plan and look forward to the attainment of the set objectives.

Dr. Makur Matur Kariom

Undersecretary, Ministry of Health

Acknowledgments

Immunization cMYP is a key strategic and management document for national immunization programs that provide national goals, objectives and strategic directions that address all components of the immunization system relevant to the country. The new cMYP (2018-2022) is the result of the collaborative work of the Ministry of Health and key partners working in health.

The Ministry of Health of the Republic of South Sudan would, therefore, like to express its special thanks to the tireless efforts of the technical team supporting the national immunization program for the successful preparation of the document. Our appreciation goes also to, WHO, UNICEF, and other relevant EPI partners for their support throughout the entire process of this document development.

The Primary Health Care Directorate would also like to acknowledge the ICC members and the cMYP review team for their active participation and constructive comments improving the quality of this document.

Dr. Atem Anyuon

Director General for Primary Health Care, Ministry of Health

Executive Summary

The EPI multi-year plan in South Sudan (2018-2022) highlights the areas of focus for the immunization program development over the next 5 years based on previous program performance, priorities for the health sector as stipulated in the Health Sector Development Plan and the global and regional goals set for child health and survival. The Global Vaccine Action Plan, Millennium Development Goals on mortality and morbidity reduction and the WHO Regional Strategic Plans provided the overall strategic framework for the development of the plan as well as priorities set in this comprehensive multi-year plan (cMYP).

EPI performance in South Sudan showed a progressive decline in routine immunization (DTP3/Penta3) from 71% in 2012 to 55% in 2013 and to 26% in 2016, with only 9 of the 80 counties (11%) achieving a coverage of 80% in 2016. The EPI Coverage Survey of 2012 reported that 45% of under-one had received DTP3 and only 34% had been fully immunized by the first birthday. The dropout rate has increased from 20% in 2014 to 23.7% in 2016 which is higher than the standard 10%. OPV3 coverage was 43% and 58% in 2016 and 2017, respectively. South Sudan has still been classified as a medium-high risk for polio outbreaks. Routine measles vaccination coverage was 52% in 2016 and only 13% of counties reached coverage of >80% resulting in frequent measles outbreaks.

The major challenges of the immunization service are lack of access for the majority of the communities mainly due to insecurity and other factors such as lack of infrastructure and geographic access resulting from flooding, as well as limited human resource capacity and strength. The challenges in routine service delivery have remained resulting in persistent failure to attain the previous cMYP set targets for DTP3 coverage and DTP1 to DTP3 dropout rates.

Despite the challenges, South Sudan has maintained polio-free status since the last case in 2009 and has been meeting the non-polio acute flaccid paralysis (AFP) surveillance performance indicators since 2004. In 2017, the non-polio AFP rate was 4.72 with stool adequacy rate of 87%. The country has successfully switched from using tOPV to bOPV that was documented and verified. Inactivated polio vaccine (IPV) was introduced into the routine EPI program in December 2015. The polio transition planning has been initiated; the business investment case to guide its realization is in place and asset and resource mapping have been completed. South Sudan will present full polio-free documentation to the African Regional Certification Committee (ARCC) in 2019.

Several investments into the program over the years such as GAVI (ISS and HSS grants), WHO, UNICEF, USAID (through WHO and MSH) and the rollout of Reaching Every County/Child (REC) approach have contributed to strengthening the National Immunization Program (NIP). The country introduced Pentavalent (DTP-HepB-Hib) vaccine in April 2015 in

order to prevent morbidity and mortality due to vaccine-preventable diseases such as pneumonia, meningitis and liver diseases.

Vaccine stock-outs were controlled but not eliminated and the aspiration to have vaccine stores in all counties was not realized as some of them were destroyed during the on-going conflict. Management of cold chain systems and maintenance of a high quality and sensitive vaccine-preventable diseases surveillance system at all levels remained in the hands of UNICEF and WHO respectively, contrary to the aspiration of developing a national owned system.

This updated cMYP will guide the focus of the program on the county and lower levels to improve routine immunization and surveillance performance; strengthen cold chain and vaccine management at all levels; introduce new vaccines: Pneumococcal conjugate vaccine 13 (PCV13); Rotavirus vaccine; Measles-Rubella (MR) vaccine, Meningococcal Meningitis A vaccine and Yellow Fever vaccine into routine immunization; strengthen capacity of mid-level managers, operational level health workers and pre service trainees to deliver quality EPI services; advocate for sustainable financing of the program; sustain polio free status; achieve neonatal tetanus and measles elimination targets. Strategies such as REC, integration of activities (outreaches, vaccination weekdays, routine immunization acceleration days, supplemental immunization activities), and advocacy, communication and social mobilization for the program and behavior change communication through "Integrated Community Mobilization Network" using evidence-based data will be used to achieve the targets set.

The country has gathered some experiences in new vaccines introduction e.g. Penta and IPV. The lessons learnt from these vaccine introductions will be used to introduce newer vaccines during the lifespan of this cMYP- 2018 – 2022. The program intends to construct a national vaccine store to commensurate with the needs of a new nation, conduct polio, measles, TT and Men A supplementary immunization activities, which contributes significantly to the increased costs in the period between 2019 and 2021. It is envisaged that the substantial funding gap will be addressed through mobilizing additional resources and securing financial sustainability.

The cMYP has been costed by components detailing key intervention strategies. This plan focuses on five service components namely: vaccine supply and logistics ($56,497,404); service delivery ($20,559,723); advocacy and communication ($9,539,067); monitoring and disease surveillance ($45,018,208) program management ($34,936,122); supplemental immunization activities ($28,219,058) and others amounting to a total of $198,813,558.

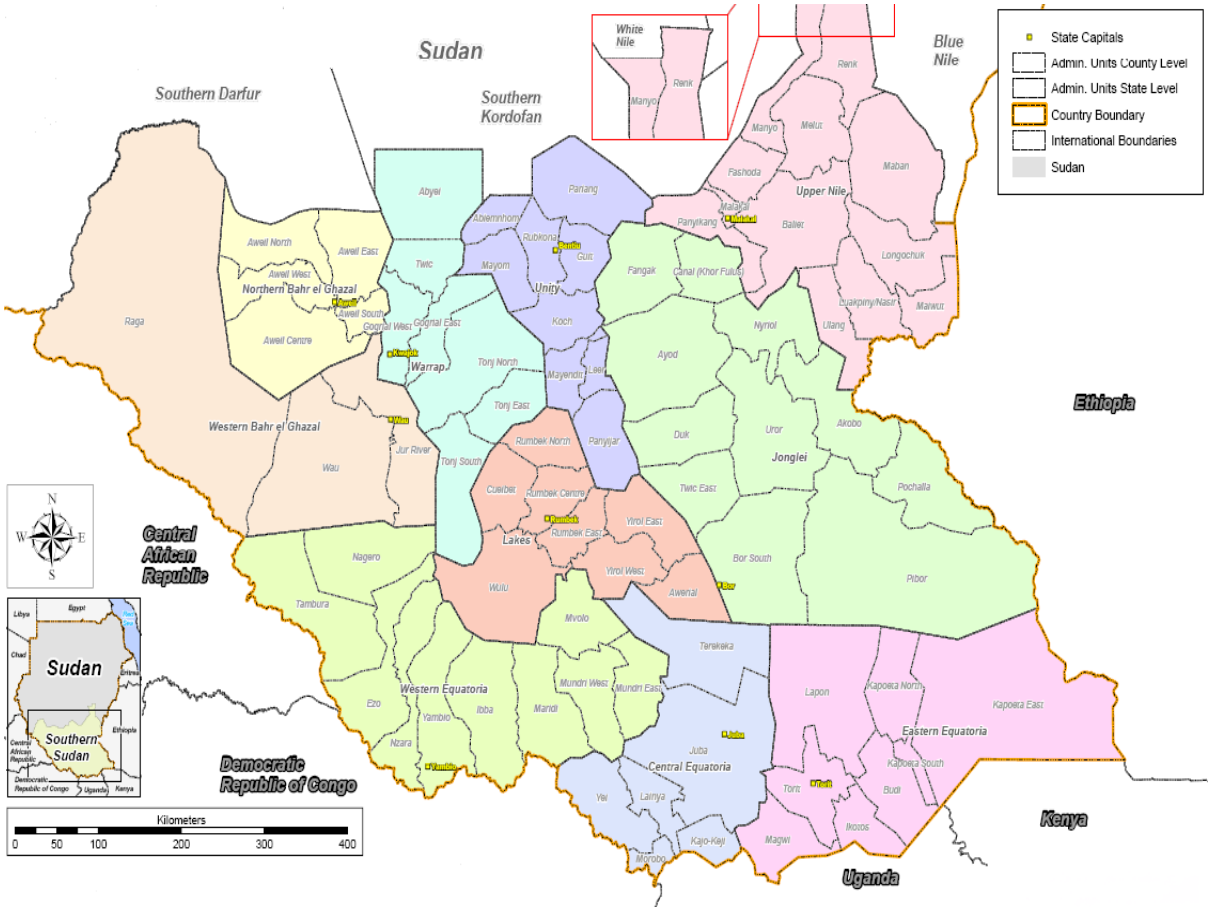
1. Background

1.1 Geographic and Demographic Situation

South Sudan is a land-locked country bordered by the Republic of Sudan to the North, the Federal Democratic Republic of Ethiopia to the East, the Republic of Kenya to the South East, the Republic of Uganda to the South, the Democratic Republic of Congo to the Southwest and the Central African Republic to the West. It lies between latitudes 3° and 13°N, and longitudes 24° and 36°E. It is covered in tropical forest, mangrove, swamps, and grassland. South Sudan covers an estimated area of 619,745 km^2, of which 18% consists of White Nile and its related tributaries and swamps, with the rest being made up of plateaus with numerous small hills and extensive savannah plains. It receives abundant rainfall and is rich in tillable land.

Since January 2017 the country is administratively divided into 32 States of which 22 are new. Before the new division, the country was composed of 10 states, 80 Counties that were further dived into 605 Payams, 2,532 Bomas, and 26,544 estimated villages. For health services, the MOH is represented at State, County, and Payam levels while the Bomas is within the Local Government Structures.

Figure 1: Map of the Republic of South Sudan



Source: South Sudan Centre for Census, Statistics & Evaluation (SSCCSE), 2010

The total estimated population in 2016 is 12,234,554 as projected from the 2008 national census with a population density of *13.33 km²* and annual population growth of 3.1%. The proportion of males is 48% while females constitute 52% of the total. The population below 15 years is 47% (5, 922,748) and below 5 years is 20% (2, 646,334). Life expectancy at birth is 42 years[1]. The majority (88%) of the population lives in rural areas.

1.2 Humanitarian context

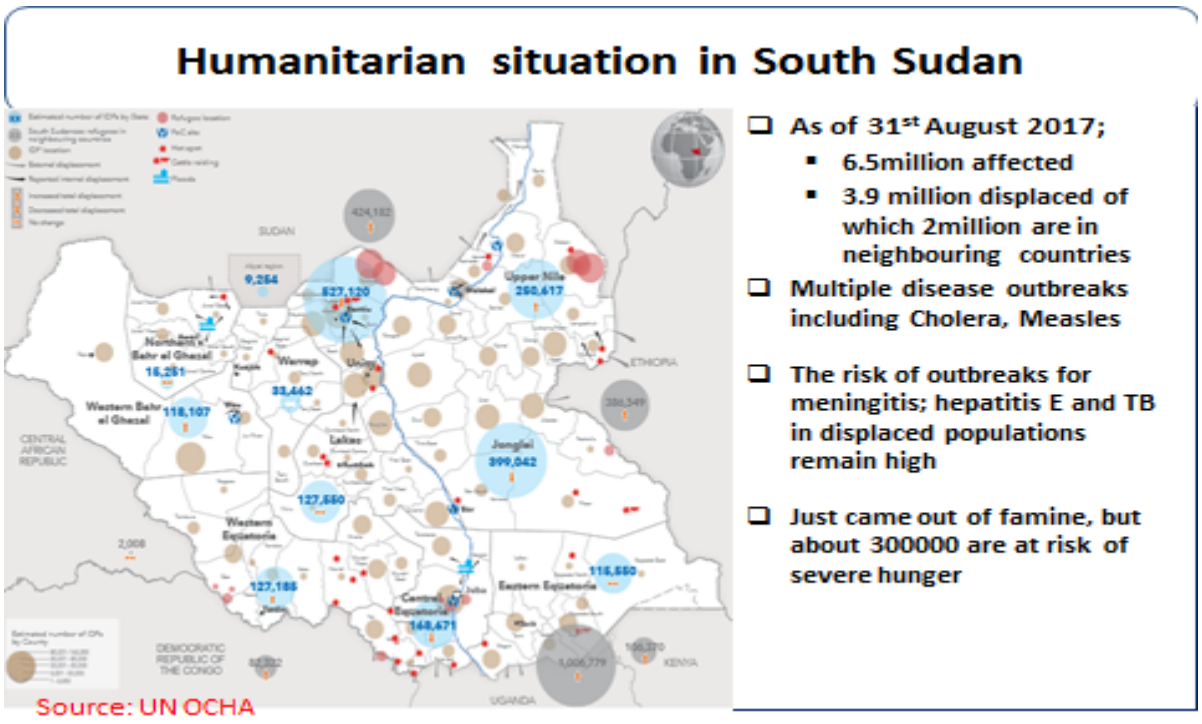
South Sudan has been experiencing a protracted crisis since December 2013. The Government is committed to the IGADplus Peace Agreement and is implementing a National Dialogue; however, a resolution of the crisis is yet to materialize. As of 31st August 2017, 7.5 million people have been affected by the conflict. Over 3.9 million people have been displaced of whom 2 million are in neighboring countries in Uganda, Ethiopia, Sudan, Kenya and Congo DRC[2]. Among the 1.9 million internally displaced, over 300,000 are in five Protection of Civilian Sites (PoCs) managed by the UN and humanitarian agencies, while the rest are scattered in unofficial sites.

The fragile health system has been further weakened. Human resources availability and capacities and health financing inflows have diminished; health information system remains vertical for most programs despite the DHIS, and supply chain system is underdeveloped and not integrated.

Consequently, there has been a decline in health service delivery outcomes. Outbreaks including measles, cholera, hepatitis E and Kalazar have occurred frequently. Immunization coverage for DPT-containing vaccine (DPT3) has declined from 72% in 2012 to 26% in 2016. The weak health outcomes have resulted from the disruption and destruction of health service infrastructure including the looting of cold chain equipment. Access to population has been impeded by unpredictable security, poor road infrastructure, flooding, communal conflicts and high operational cost. Despite the fact that the situation remains very fluid and unpredictable, this cMYP accommodates strategies to respond to the humanitarian needs with respect to the provision of immunization services.

[1] South Sudan health household survey (SHHS, 2010)
[2] UN OCHA, August 2017

Figure 2: Humanitarian situation, South Sudan

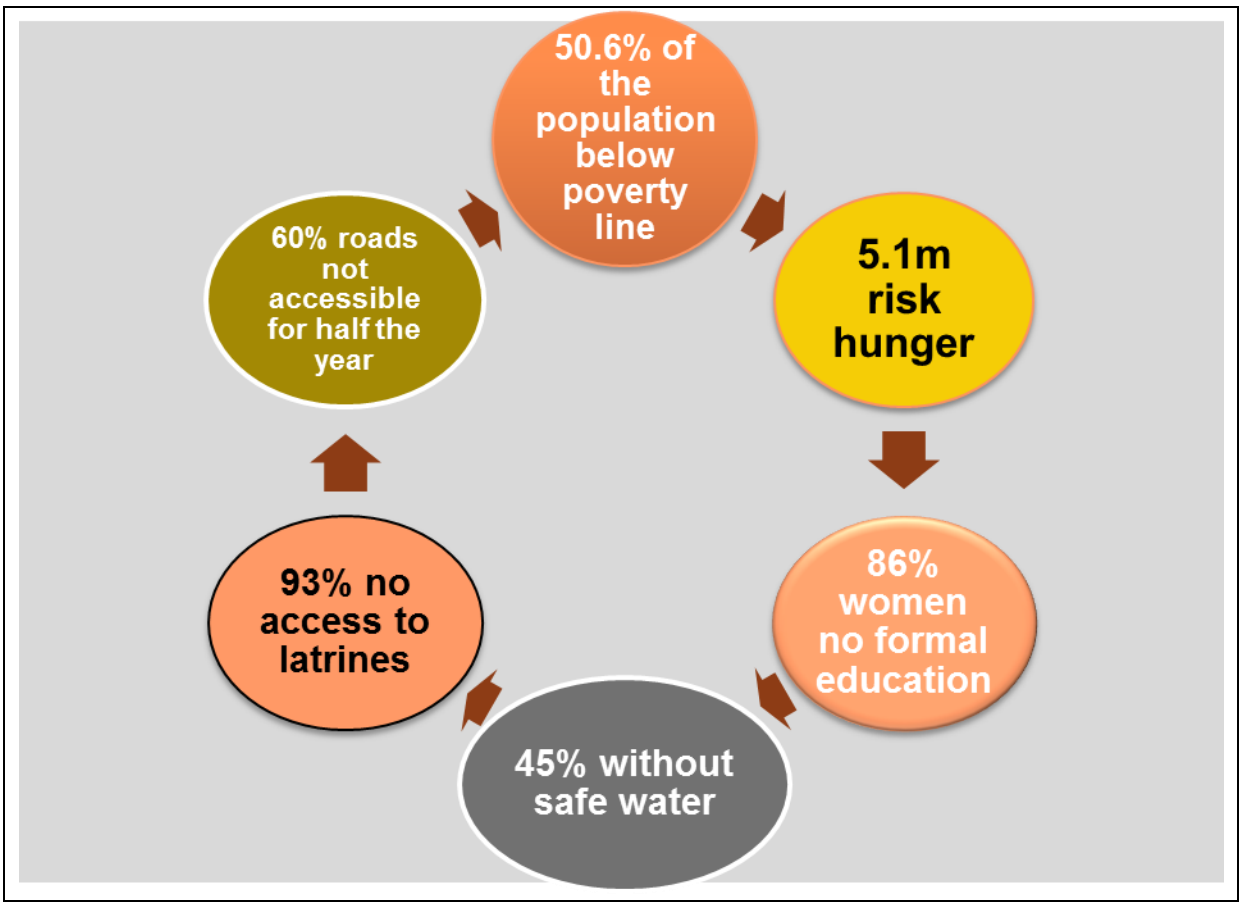


1.3 Socioeconomic Context

The economy of South Sudan is mainly dependent on crude oil but challenged by a huge institutional and structural gaps in harnessing this or other resources. The country also contains many natural resources such as petroleum, iron ore, copper, chromium ore, zinc, tungsten, mica, silver, gold, and hydropower. The country's economy, as in many other developing countries, is heavily dependent on agriculture. As per the UNDP report of 2016, the Human development index of South Sudan is 0.418 (Low Human Development) where it is ranked as 181/188 countries globally and estimated Gross National Income Per Capita of 1,882 US$ in 2015. South Sudan is among the least developed countries in the world. More than 90% of the population lives on less than 1 US$ per day, and the absolute poverty rate is estimated to be between 40% and 50% of the total population of the country. Literacy is lower than 20% and school enrolment was 31% in 2010[3]. The vast majority of the population is engaged in rural subsistence farming and cattle herding. Living conditions are very deprived with poor access to potable drinking water (less than 50%), and poor access to proper sanitation (less than 7%).

[3] National Bureau of Statistics: South Sudan Multiple Indicators Cluster Survey report, 2010

Figure 3: Socioeconomic indicators, South Sudan, 2014



1.4 The Health Sector

The South Sudan Development Plan of 2016 – 2020 emphasizes a sector-wide and comprehensive development of all sectors, including health, in order to reduce poverty and accelerate progress towards socioeconomic development. The principles of gender mainstreaming have been stated by the government as critical to public policy in all sectors and are incorporated in this plan. In line with the South Sudan vision 2014 and the South Sudan Development Plan of 2016 – 2020, the Health Sector Development Plan (HSDP) 2015-2019 provides the overall vision and strategic direction for development in the health sector. The overall goal of the HSDP is "to contribute to the reduction of maternal and infant mortality and improve the overall health status, as well as the quality of life of the South Sudanese population".

The section on health in the social and human development pillar has five program areas with targets to be achieved within the next few years. The five program areas reflect priorities within the three objectives for this five-year health development plan. The five programmes are:

i. Increasing access to basic health services and health promotion
ii. Strengthening human resources in the health sector
iii. Expanding the pharmaceutical and medical equipment supply chains

iv. Strengthening the health management system
v. Strengthening provision of HIV and AIDS services

South Sudan has suboptimal health indicators and mortalities are high. The neonatal mortality rate is 39/1,000 live births[4]. The Maternal Mortality ratio is 2054//100,000 live births[5]. The UN inter-agency group for child mortality (UN IGME) estimation report of 2017 estimated that the child mortality for South Sudan is 91 per 1,000 live births, a decline from the 1996 estimate of 256/1000 live births[4].

Table 1: Health and health-related MDGs, South Sudan

MDG	Baseline	Target 2022
Maternal mortality ratio (per 100,000 live births)	2054 (SHHS 2006)	1643 (20% reduction)
Infant mortality rate (per 1,000 live births)	84 (SHHS 2010)	59 (30% reduction)
Under-five mortality rate (per 1,000 live births)	106 (SHHS 2010)	80 (25% reduction)
Proportion of under-fives moderately and severely underweight (weight for age)	30.3% (SHHS 2010)	20%
The proportion of under-fives moderately and severely stunted (height for age)	25% (SHH 2010)	22%
The proportion of pregnant women receiving two doses of preventive intermittent treatment for malaria	13% (SSMIS 2009)	30%
Under 5-years of age sleeping under an ITN the previous night	25% (SSMIS 2009)	70%
Proportion of children under 1 year vaccinated against DTP-3	45.0% (EPI Coverage Survey 2012)	>90%
The proportion of children under 1 year fully immunized (card only)	34% (EPI Coverage Survey)	80%
Use of improved drinking water sources	55% (SHHS 2010)	65%
Use of improved sanitation facilities	15.4% (SHHS 2010)	40%

[4] World bank group World Development Indicators, 2013

[5] South Sudan Health Survey, 2006

1.4.1 The National Health System

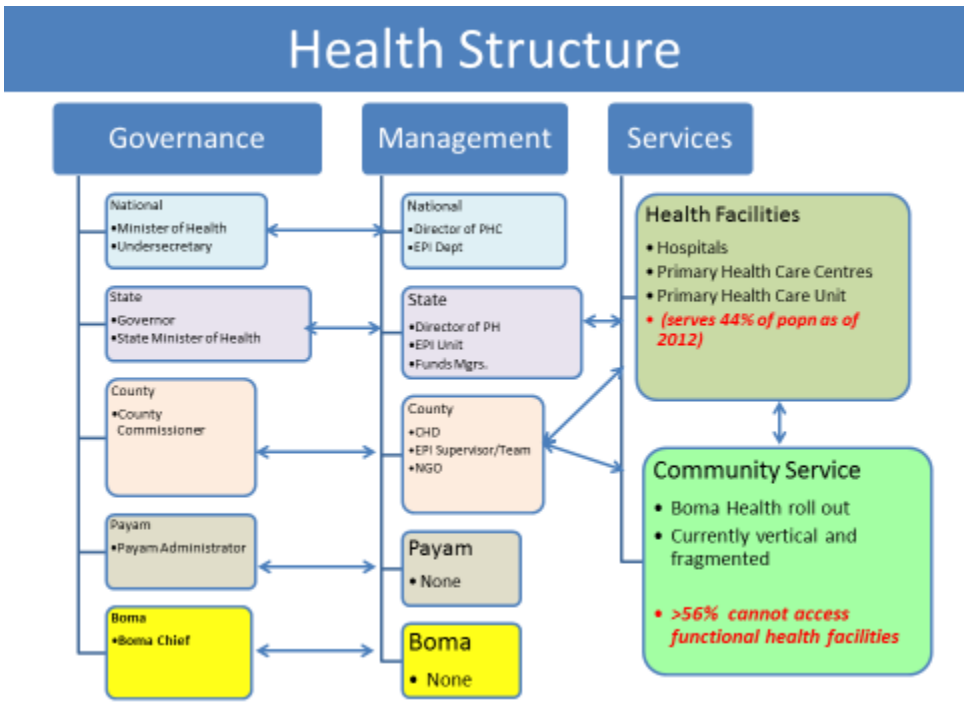
In the framework for state building in South Sudan, the MoH is taking a sector-wide approach. This includes faith-based organizations (FBOs), non-governmental organizations (NGOs - local and international) and private clinical facilities. In 2013, several donors led by Department for International Development (DFID - United Kingdom) pooled funds to support the health services including immunization and formed the Health Pooled Fund (HPF) which supports all the new states that evolved from the eight former states- Northern Bahr El Ghazal (NBeG), Western Baher El Ghazal (WBeG), Lakes, Warrap, Unity, Eastern Equatoria (EE) states, Central Equatoria (CE) and Western Equatoria (WE). IMA which is funded by World Bank supports the new states that evolved from the two former states –Jonglei and Upper Nile. These three fund managers contract one NGO in each county to be the lead agent in working with and supporting the County Health Department. Thirty NGOs in 80 former counties have been engaged by the fund managers and in addition to this other NGOs are also engaged in immunization services.

Through the inter-ministerial committee and other channels at the national level, the MoH works to ensure that all sectors consider health nationwide (central, state and county levels). Important sectors for health include agriculture, animal, industry, water, education, community development and finance and economic planning. The inter-sectoral efforts over the years have made some marginal progress in the global development goals including the Millennium Development Goals (MDGs) being aligned with the current Sustainable Development Goals (SDGs).

1.4.2 Health Service Structure

Public Health Services are delivered along a four-tier system, starting from primary level to tertiary level. Most health infrastructure is affected, essential medical and surgical equipment outdated or lacking. Management and human resource capacity are weak. NGOs are responsible for close to 80% of health service delivery, which impacts the coordination of service delivery. Immunization services provision is captured within the Basic Package of Health Services (BPHS). The BPHS comprise a selection of maternal and child health, control communicable diseases, improves community nutrition and control of non-communicable diseases services.

Figure 4: EPI within the National health structure



The national immunization program has a Director and Deputy Director and functionally is under the Primary Health Care Directorate that governs the Child Health and EPI, Nutrition, Health Promotion and Education and Department of Primary Health Care (Figure 4). The vision of the program is to ensure that the population of South Sudan is free of vaccine-preventable diseases and its mission is to contribute to the overall objective of the HSDP in reducing morbidity, mortality, and disability due to vaccine-preventable diseases.

The program aims at ensuring that every child is fully immunized by the first birthday against targeted diseases, and every newborn is protected from neonatal tetanus. The targeted diseases are tuberculosis, poliomyelitis, diphtheria, pertussis, tetanus, pneumonia, meningitis, liver diseases and measles; and new vaccines to be introduced against other diseases.

The programme has 5 focus areas namely:

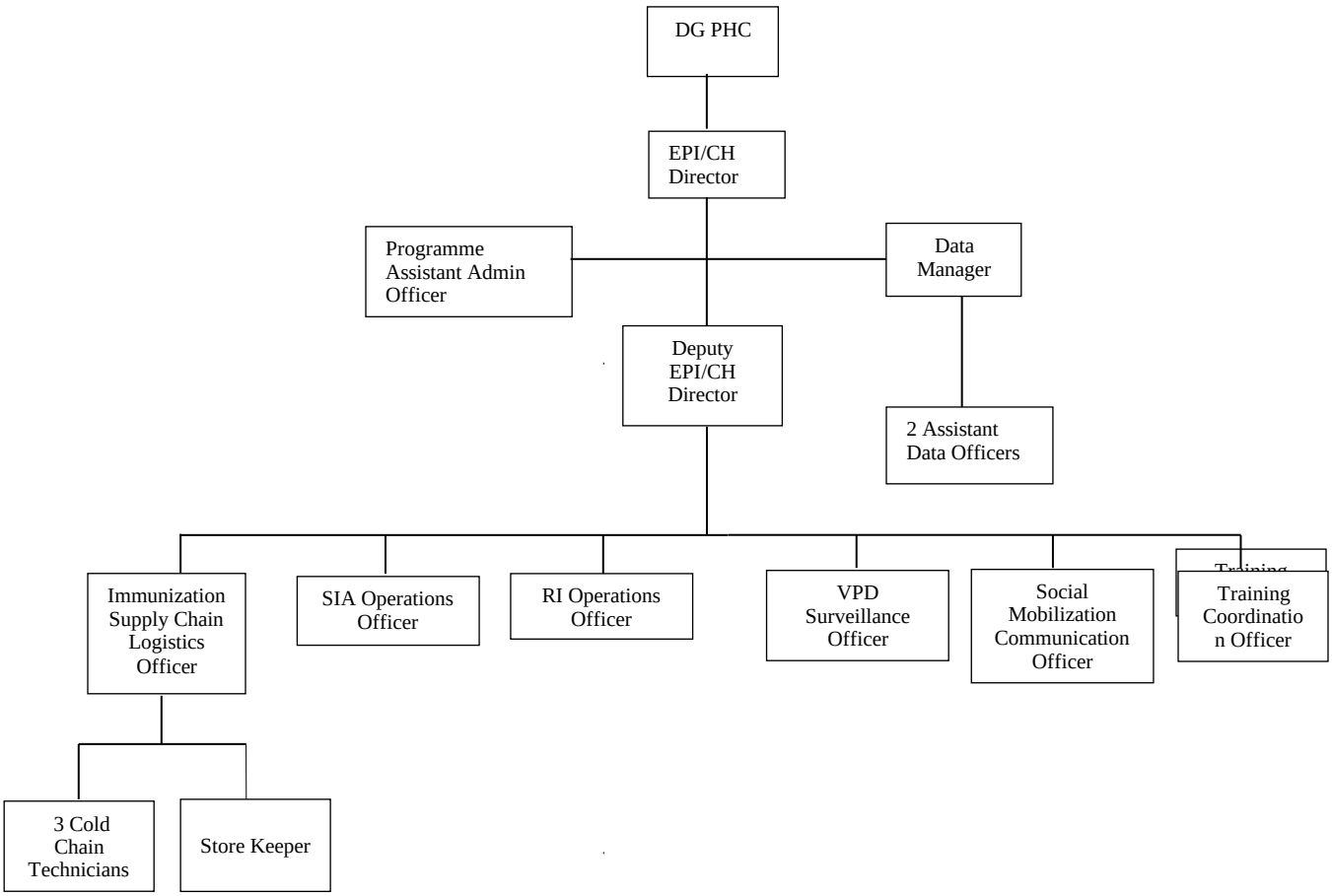
i. Strengthening routine immunization;
ii. Supplemental immunization activities to achieve globally set targets of polio eradication, elimination of maternal and neonatal tetanus, and measles;
iii. Capacity building and integration;
iv. Establishing a sensitive disease surveillance system;
v. Advocacy, communication and social mobilization.

The structure is reflected in the Directorate of PHC in the State Ministries of Health, the EPI Unit in the County Health Department and sections within health facilities across the country. The structures at lower levels have a semi-autonomous mandate that dictates resources mobilization and utilization decisions as well as performance management systems.

In line with the mandates of the Ministry of Health, the National EPI programme is responsible for policy, standards and priority setting, capacity building, coordinating with other stakeholders and partners, resource mobilization, procurement of inputs such as vaccines and injection safety materials, monitoring and technical support supervision to states and lower levels. The states and counties are responsible for planning, management, and delivery of EPI services. The community is involved in mobilization and bringing the children for immunization. Immunization is part of the Primary Health Care Approach used in the country and is integrated into the child survival interventions at all levels.

The following table shows the proposed EPI structure in South Sudan. EPI/CH is under the Directorate of Primary Health Care. It has a Director and Deputy Director with an Admin Officer, Data Manager and technical officers at various levels as depicted in Figure 5.

Figure 5: Organizational structure of EPI in South Sudan (Proposed)



Immunization schedule for infants and children

All infants are to be fully immunized against tuberculosis, diphtheria, tetanus, whooping cough, polio, measles, hepatitis B and Haemophilus influenza type b disease, and pneumococcal pneumonia and meningitis, Diarrhea and others according to the following routine vaccination schedule in Table 2.

Table 2: Routine immunization schedule for all infants and Women of Reproductive Age

VACCINATION FOR INFANTS			WOMEN OF REPRODUCTIVE AGE (15-49 YEARS)		
AGE	**VISIT**	**ANTIGEN**	**VISIT**	**ANTIGEN**	**INTERVAL**
Birth	1	BCG, OPV0	1	TT1	0 (as early as possible)
6 weeks	2	DTP-HepB-Hib (Penta) 1, OPV1	2	TT2	At least 4 weeks after TT1
10 weeks	3	DTP-HepB-Hib Penta) 2, OPV2	3	TT3	At least 6 months after TT2
14 weeks	4	DTP-HepB-Hib Penta) 3, OPV3, IPV	4	TT4	At least 1 year after TT3 if not, in a subsequent pregnancy
9 months	5	Measles	5	TT5	At least 1 year after TT4 if not, in a subsequent pregnancy

Immunization schedule for pregnant women

To prevent maternal and neonatal tetanus, pregnant women should be immunized according to the schedule in Table 2. Immunization should be supplemented by the promotion of clean deliveries by trained birth attendants, nurses, and midwives.

2. Situation Analysis

2.1 Morbidity and Mortality Trends in Children

South Sudan has some of the worst health outcome indicators in the world, in spite of modest improvements in the last 5 years. Maternal mortality ratio is 2054 per 100,000 and mortality rates for infants and under five years declined from 102 and 135 in 2006 to 75 and 104 per 1000 live births respectively in 2012. Common causes of under-five morbidity and mortality include complications from birth, common childhood illnesses, malaria (50%), diarrhea (17%), pneumonia (10 %,), others including malnutrition, anemia, and helminths[6].

2.2 Service Delivery

Health service delivery is provided mainly by implementing partners (80%) that are non-governmental organizations and an estimated 44% of the population has access to health

[6] Health Management Information System (HMIS), South Sudan, 2013

services. Routine immunization services are delivered through a mix of fixed sites, outreach services, mobile and accelerated campaigns (PIRI: periodic intensification of routine immunization) that use the same service delivery points to mop-up immunization defaulters (dropouts or missed children). Out of the 1,313 functioning health facilities, only 32% provide routine immunization using fixed sites and outreach services. Only limited health facilities provide outreach services and the coverage achieved in the previous years has been mainly from the periodic campaigns conducted. The UNICEF/WHO Estimates of National Immunization Coverage (WUENIC) show a progressive decline in routine immunization (DTP3) from 71% in 2012 to 55% in 2013 and to 26% in 2016, with only 9 of the 80 counties (11%) achieving a coverage of 80% in 2016 (Figure 6&7). The EPI Coverage Survey of 2012 reported that 45% of under-one had received DTP3 and only 34% had been fully immunized by the first birthday. The dropout rate has increased from 20% in 2014 to 23.7% in 2016 which is higher than the standard 10%.

The major challenges of the immunization service delivery include limited human resource capacity and strength; as well as the lack of access for the majority of the community due to mainly insecurity and other factors such as lack of infrastructure and geographic access resulting from flooding. The outreach strategy has proven very effective in reaching many children with immunization services but this has been hampered by insecurity.

There is limited cold chain capacity that is also facing challenges of looting and vandalization. The health facility mapping has started and is available in 19 counties and is progressing to others. Conflict-affected and hard to reach areas have been identified, mapped and appropriate strategies are designed to reach them with immunization services. The adaptation of the Reaching Every County (REC) strategy to reach every child in the country was initiated and health facility micro-plans development at the county level has been started that is yet to be expanded to all counties.

Figure 6: Trends in EPI performance, 2007 – 2017[7]

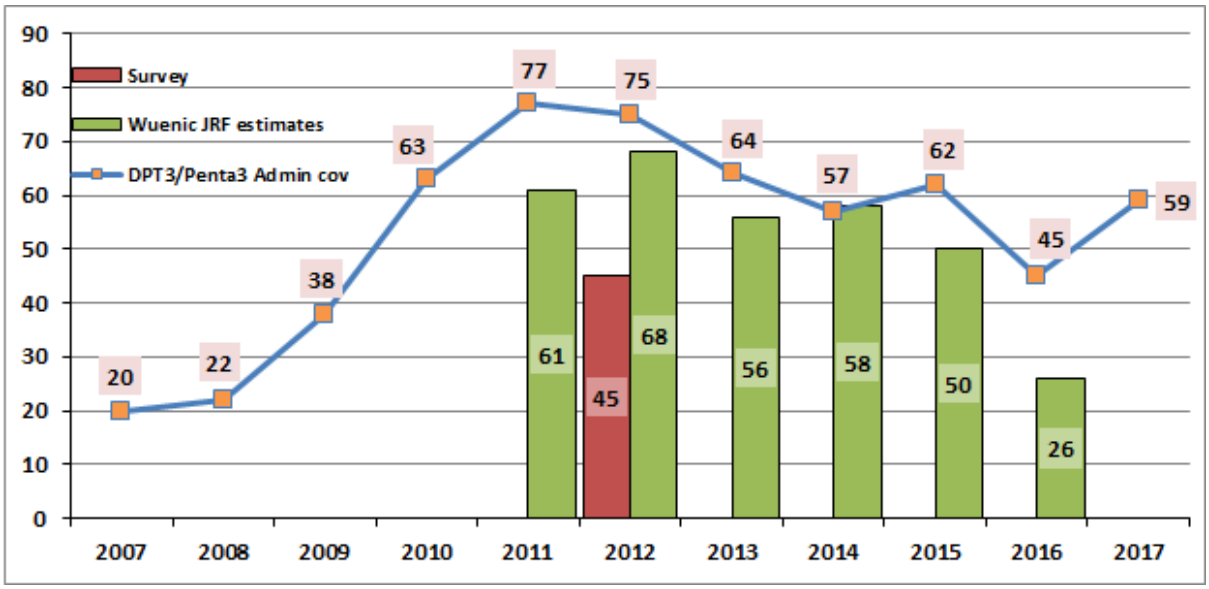
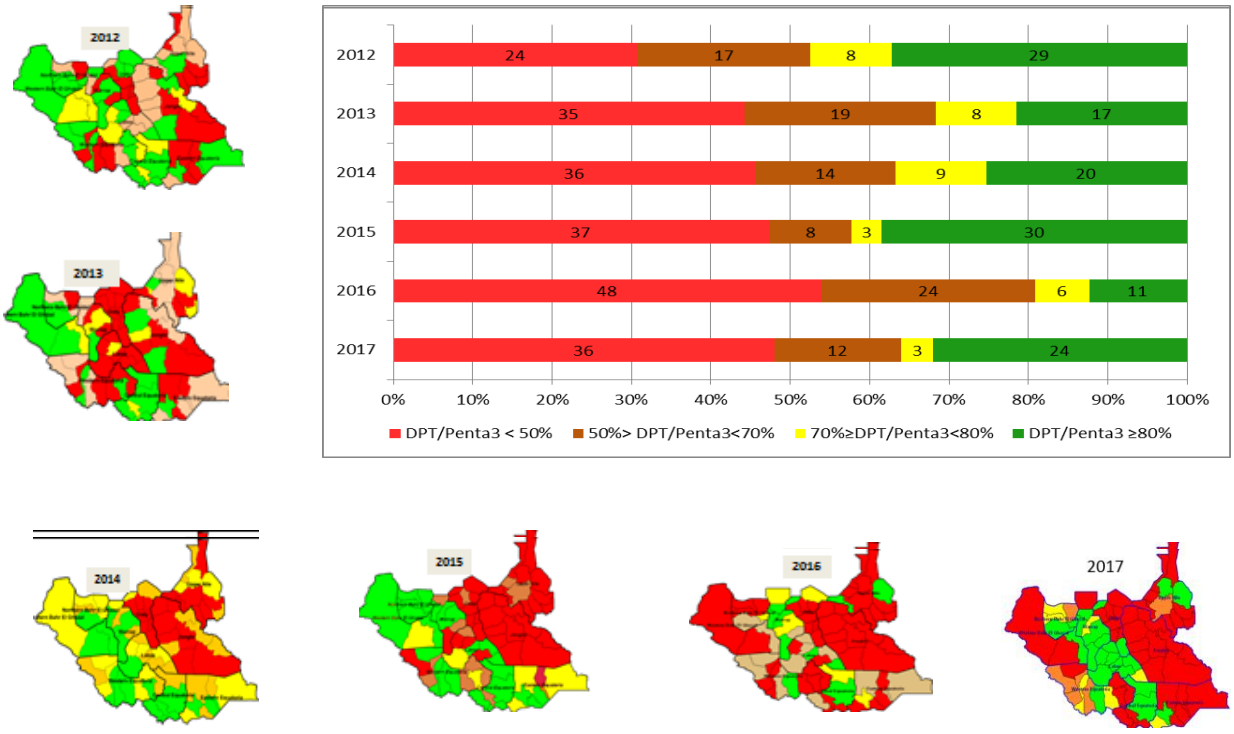


Figure 7: Number of Counties with DPT/Penta 3 coverage by category, 2012 – 2017[7]



[7] JRF, MOH, 2005-2017

South Sudan is committed to the eradication of polio and the elimination of measles and maternal and neonatal tetanus. There has not been wild poliovirus case in the country since June 2009. The accumulation of susceptible population resulting from the crisis led to the occurrence of circulating Vaccine Derived Polio Virus type 2 (cVDPV2) in September 2014. Outbreak response interventions were implemented and closed in 2016 after 2 years by External Outbreak Assessment Team. Four rounds of Polio SIAs per year, as well as surveillance improvement plans coupled with routine immunization, continue to reduce immunity gaps.

2.3 Vaccine Preventable Diseases Surveillance

The disease surveillance system is under the Directorate of Preventive Health Services and is named epidemic preparedness and response among other departments namely the HIV, TB, Malaria, Non-Communicable Diseases, Guinea Worm, Eye Care, Environmental and Occupational Health and Neglected Tropical Diseases while International Health is under the International Health Coordination Directorate.

South Sudan adopted the Integrated Disease Surveillance and Response Strategy as a framework for disease surveillance in 2005 including Vaccine Preventable Disease Surveillance. The National guideline was adopted and implemented since 2007 and revised in 2013. It includes 26 priority conditions/diseases that are modifiable. The list includes AFP (Polio), measles, neonatal tetanus, yellow fever, meningitis (not specified), pneumonia and diarrhea in children below 5 years of age and Adverse Events Following Immunization (AEFI). There is a weekly report for epidemic-prone diseases using the EWARN system and reports are reviewed weekly for action. The timeliness and completeness of health facilities reporting had declined from 80% to 50% after 2013 crisis as it is affected by the infrastructure, communication, and insecurity. There is an early warning alert and response network in all counties using mobile technology done by County Surveillance officers. There is a plan to move all system to the use of mobile technology for prompt notification and timely investigation and response to outbreaks.

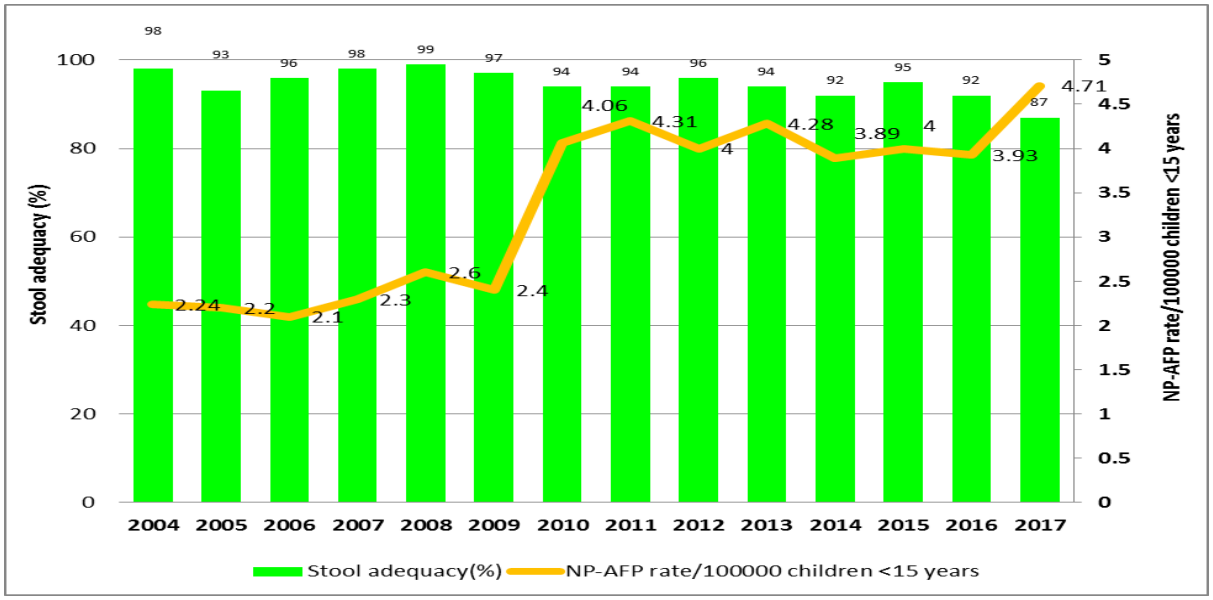
The AFP surveillance for poliomyelitis was first established in 1998 during the operations lifeline Sudan in South Sudan. Currently, there are 615 community level informants that notify suspected AFP cases to 237 field surveillance assistants who cover the 605 Payams. The field surveillance assistants are expected to investigate each reported case, verify if it meets the criteria for AFP and reports to one of the 72 Field Supervisors who covers the 80 counties. Stool specimens are collected from cases that meet the AFP criteria. There are 12 EPI Officers operating out of the 10 State Hubs (10 former states). The AFP surveillance reporting sites are 1,246 of which 590 (47%) are low priority, 371 (28%) medium priority and 285 (22.8%) are high priority sites used to guide active surveillance visits that are regularly monitored. Recently the country introduced Open Data Kit to monitor the ongoing active surveillance to get real-time data.

South Sudan interrupted indigenous wild poliovirus in 2001. However, soon after the interruption the country confronted with polio outbreak in 2004-2005 and 2008 -2009.

South Sudan has maintained a polio-free status since the last case in 2009 and has been meeting the non-polio AFP surveillance performance indicators since 2004. In 2017, the non-polio AFP rate was 4.72 with stool adequacy rate of 87%. The country successfully switched from using tOPV to bOPV that was documented and verified. In 2019, South Sudan will present full polio-free documentation to the African Certification Committee (ARCC). Polio transition planning has commenced mapping of polio assets and resources completed. A business case for integrating polio assets into priority health services in South Sudan is being developed.

The country has not met the standard measles surveillance performance indicator of 2 cases per 100,000 populations. South Sudan is still in the mortality reduction phase as the country continues to experience a number of measles outbreaks and measles deaths. Maternal and neonatal tetanus cases are reported through the IDSR but the country initiated integrating NNT case-based surveillance with other VPD surveillance system and also strengthening to enhance monitoring of adverse events following immunization.

Figure 8: Non-polio AFP rate and stool adequacy, South Sudan, 2004 – 2017[8]



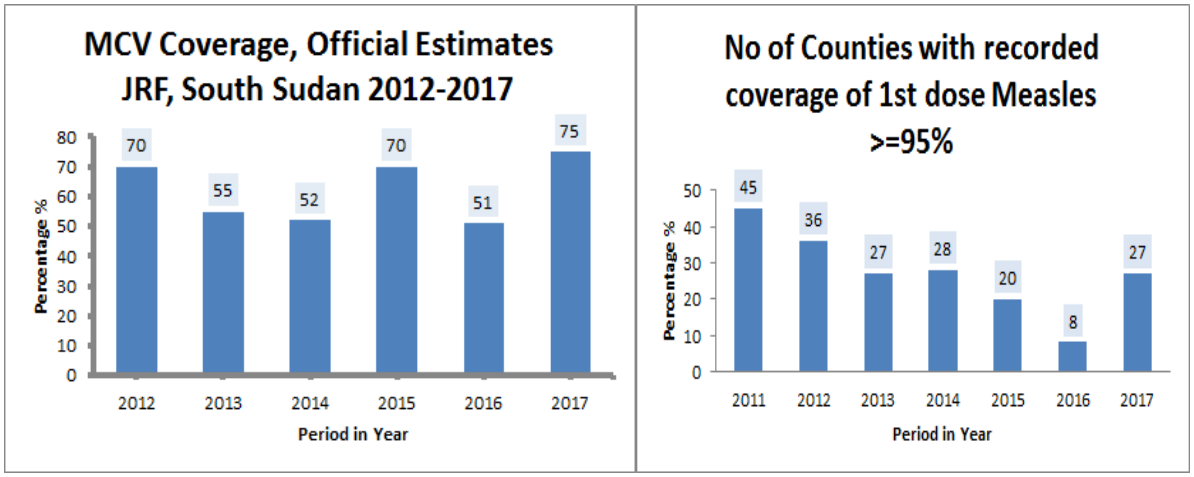
2.4 Measles and Rubella Epidemiology

Measles incidence in South Sudan is above 1 per million. Following the implementation of measles control strategies from 2005 and the Measles Elimination Strategic Plan 2014 – 2018, the frequency of outbreaks have reduced significantly. Twenty-two (22) measles outbreaks were recorded and controlled in 2013. The risk of outbreaks was eminent in the early part of 2014 following the December crisis, culminating in the conduct of the follow-up campaign as planned in the strategic plan. As a result, the frequency of measles outbreaks reduced from 25 in 2014 to 8 in 2015. Despite these achievements, the uptake of measles

[8] Annual AFP surveillance update, MOH, South Sudan, 2004 -2017

vaccines in routine immunization remains a challenge with 52% coverage in 2016. Only 13% of counties reached routine measles vaccination coverage of >80%. Thus the frequency of measles outbreak increased to 44 in 2016.

Figure 9: Admin coverage of MCV1 Vs. proportion of counties >95%, 2012 – 2016



S Sudan has been experiencing a high incidence of measles in the past few years- ranging from 38 per million in 2017 to 180 per million in 2012.) However, in the past five years since the onset of the armed conflict, surveillance for measles has suffered much like the rest of the immunization activity in the country. So, it is estimated that the true magnitude of measles is much higher than reported, particularly in the conflict-affected states.

Table 3: Measles incidence in S Sudan. 2011 - 2017.

	2011	2012	2013	2014	2015	2016	2017
Total population (projected from census)	10,502,857	10,864,357	11,196,351	11,532,241	11,878,208	12,234,555	12,601,591
Officially reported measles cases	1256	1952	525	441	878	898	486
Incidence of measles	119.6	179.7	46.9	38.2	73.9	73.4	38.6

Despite the fact that vaccination coverage has declined markedly since 2014, the reporting of measles cases has not increased significantly as can be expected. This is due to the disruption of the

surveillance network and limitation of access to investigate outbreaks in some of the State hubs.

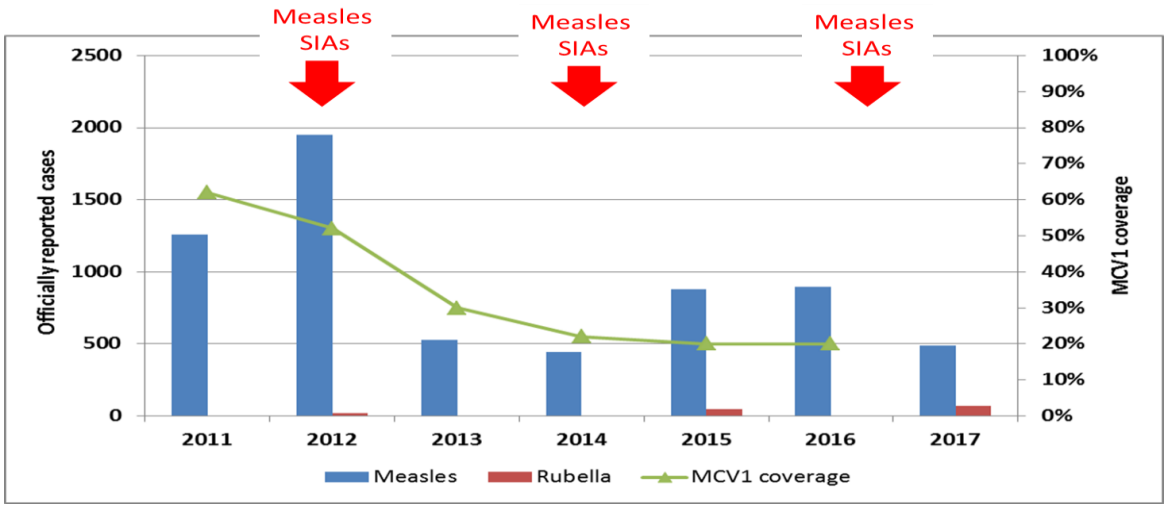


Figure 10: Measles and rubella case reports and vaccination coverage in 2011 - 2017. S Sudan.

The case-based surveillance system has been confirming cases of measles by the lab and by epidemiological linkage throughout the last two years, with peaks occurring in the first half of the year. The national measles lab experienced periods of stock out of test kits and reagents in 2017/18.

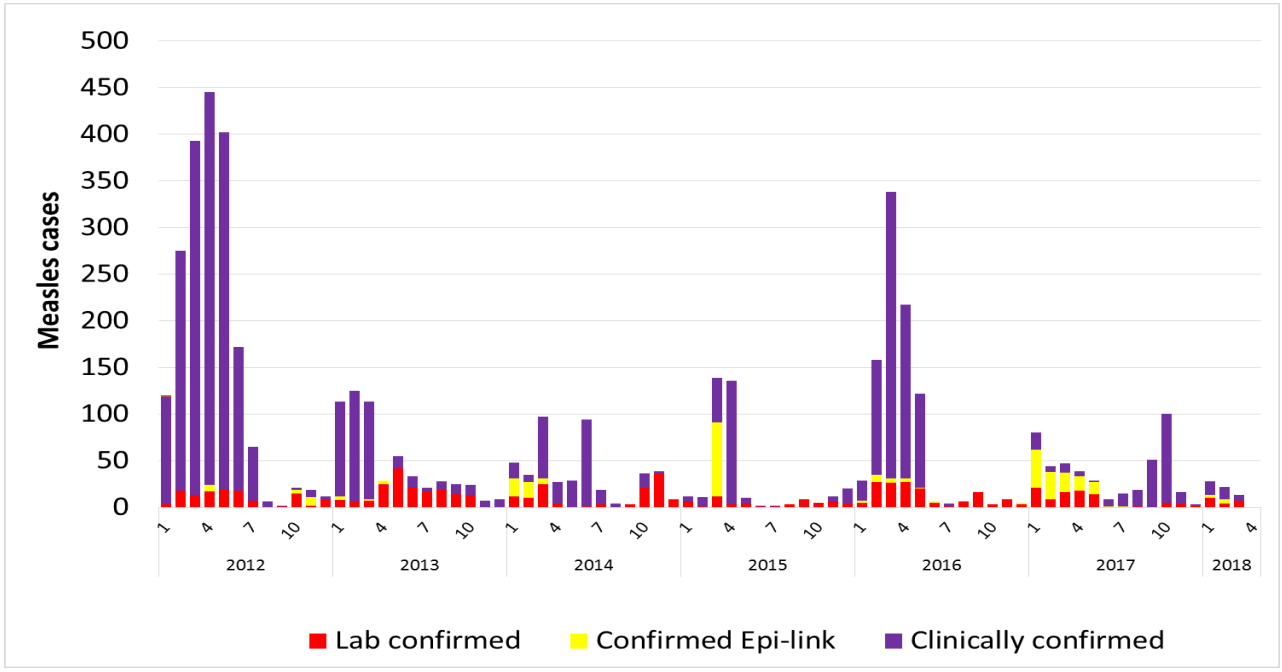


Figure 11: Confirmed measles cases by epidemiological week. 2016 - 2017. S Sudan.

In 2017, a total of 541 confirmed measles cases were detected through the case-based surveillance system, of which 90 were confirmed by a lab, while the others were confirmed by epidemiological linkage and clinically. These cases came from all provinces except the conflict-affected states had very few case reports, due to the fact that case-based surveillance has been interrupted due to the situation. In addition, the national measles serological confirmatory laboratory experienced periods of stock-out of test kits and reagents in 2017/18, leading to a relatively large number of cases being confirmed clinically.

It is important to note that the measles serological confirmatory laboratory also conducts rubella IgM tests on specimens that have become negative for measles IgM. Accordingly, there is some data on lab-confirmed rubella cases in South Sudan, as indicated by the chart below. Between the years of 2015 to 2017, an average of 5 – 10 rubella cases were being confirmed by lab every month throughout the country. (Figure 8)

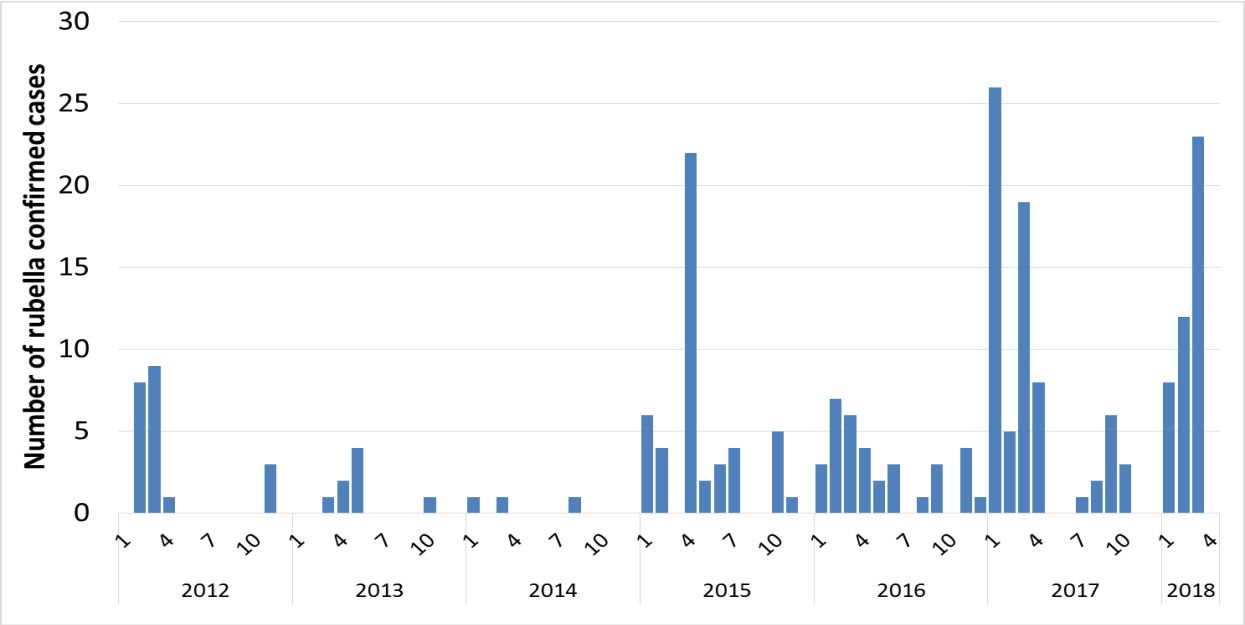


Figure 12: Monthly trends of confirmed Rubella. S Sudan. 2012–2018

In a bid to eliminate maternal and neonatal tetanus, the country embarked on TT campaigns from 2012 targeting women of reproductive age. The country was divided into 3 phases, based on the level of risk. The Greater Equatoria States were in the first phase as they were in the high-risk category and have already completed three rounds. The Greater Upper Nile States including Warrap State was in the second phase of moderate risk and have completed 2 rounds of TT. The remaining Greater Bahr El Ghazal States were in the third phase which is low risk. The third phase states conducted the first two rounds in the second half of 2016. The campaigns which were to be completed by 2014 had to be re-planned due to the crisis. Routine coverage for TT2 in 2016 was 38% with huge disparity between stable states 67%, and insecure states 4%. The percentage of protected children, as well as case-based surveillance indicators, is not known. Establishment of surveillance systems among others has accounted for in this plan to meet the 2020 elimination target.

South Sudan lies in the hyper-endemic area of the African meningitis belt and is at very high risk of developing meningitis outbreaks. Two major epidemics occurred in the 2006/07 season and a total of 7,200 cases and 426 deaths were recorded. Since then, the country had outbreaks every year up to 2012 with high case fatality rates being recorded (4.7% in 2010 to 12.2% in 2012). The MenAfriVac campaign targeting 1– 29 years was implemented

in first quarter of 2016 in a phased approach (safe and insecure former states) following which routine administration has been planned for subsequent years to curtail the risk of outbreaks and to provide an opportunity for protection among vulnerable populations.

2.5 Advocacy and Communication

South Sudan has demonstrated a high level of political commitment to the Expanded Program on Immunization. Several campaigns have been flagged off by the Vice-president and the Minister of Health. Despite this level of political ownership, the progress of the services has been slow in the country.

The Health Education Department under the Directorate of Primary Health Care is responsible for health promotion including immunization services demand generation. County Health Departments are leading communication/demand generation activities under "Integrated Community Mobilization Network Approach" covering all the 10 states of the country. Under this concept, 2500 plus community mobilization workers and their supervisors are intervening round the year for demand generation. During all types of immunization campaigns, additional 2500 community mobilizers are recruited to scale-up mobilization activities. A mix of different types of communication channels (radio, interpersonal communication, IEC materials etc.) and tools (house to house visits, community meetings, megaphone announcements etc.) are currently being used. There is a task force at the national level led by Health Promotion Department of Ministry of Health. Taskforce members meet every alternate week. Considering the very unique situation of the country and complete different implementation mechanism, there are separate communication strategies at the national level and communication plans for polio and other vaccine campaigns (like measles) both at the national and state level. In addition, there are separate communication strategies for mobile population, three conflict-affected states, and the population at cattle camps. There is also a communication strategy and plan to cater communication intervention across all thematic areas including routine immunization. A coverage evaluation survey and a KAP study were conducted recently, and the report of both the events will be available soon.

There is no specific communication plan that has been developed but the result of the KAP study that is currently ongoing will be used to design the routine immunization communication plan. Polio and measles SIAs have been supported with communication plans. County Health Departments lead communication/demand generation activities in seven comparatively stable former states while partner NGOs (national and international) operate in three conflicts affected former states (Unity, Jonglei, and Upper Nile).

There is a communication technical working group at the national level which meets on weekly basis covering all the aspects including demand generation for routine immunization since 2010. Though CHDs and implementing partners have communication plans at the national and state level, county level representatives often do not have this. Media partnership has been extended to 32 national, state and community level radio stations

broadcasting key messages on routine immunization in nine local languages including English, Arabic, Dinka, Nuer and other local languages. Crisis communication plan has been developed for measles campaign and had been shared with all the partners including media. This plan is currently being modified to be used for routine immunization.

The EPI Coverage Survey of 2012 reported that 45% of under-one had received DTP3 and only 34% had been fully immunized by the first birthday. Low coverage and reasons for missing immunizations were related to lack of information and obstacles in the immunization system were respectively given by 68 percent and 64 percent of the respondents with children who were not fully immunized. Lack of information reflects issues such as mothers are not aware of the need for immunization, multiple doses or place and time of immunization. Some caregivers even cited fear of side effects for not fully immunizing the children. Obstacles in the immunization included reasons such as immunization station too far, long waiting time, vaccine out of stock, vaccinator absent and others.

South Sudan has an extremely underdeveloped media environment, limited communication channels, low literacy rates (14%), have high number of mobile community with more than three quarter of its population living in rural areas (88%) and significant knowledge and attitudinal barriers among claim holders related to survival and holistic development of children. Even before the outbreak of the current conflict, this situation contributed to the challenges in reducing infant and maternal mortality rates. The current conflict has deteriorated the situation in the country and has not only destroyed the infrastructure-communication channels but has further distanced communities from services. The routine immunization outreach and demand creation has been limited and needs further strengthening. Communication and creating community linkages to all health service users at the community level that addresses the information issues raised by respondents can go a long way to improve immunization coverage. Social map for all counties has been prepared in order to inform community level microplanning and community mobilizers deployment plan, communication plan to address communication needs of the nomadic population has been developed as well as Field Guides for community mobilizers.

2.6 New Vaccine Introduction

DPT-HepB-Hib (Pentavalent) and Inactivated Polio Vaccines (IPV) were introduced into the routine immunization program in April 2014 and December 2015, respectively.

Although the burden of diseases in South Sudan has not been studied, common causes of under-five morbidity and mortality include complications from birth, common childhood illnesses, malaria (50%), diarrhea (17%), pneumonia (10%,), others including malnutrition, anemia and helminthes (HMIS, 2013). Outbreaks including measles, cholera, meningitis and yellow fever have occurred frequently. One of the recommendations of the recent EPI and

VPD surveillance review is the identification of sentinel surveillance to document disease burden targeted for new vaccines (PCV, Rota).

Switch from Tetanus Toxoid vaccine (TT) to Tetanus-Diphtheria Vaccine (Td) will be implemented in 2019. During the next five years of this cMYP South Sudan will be able to introduce PCV and Men A vaccine in 2020; Rotavirus vaccine in 2021; Yellow Fever in 2022.

2.7 Vaccine Supply and Logistics

The country depends on UNICEF to procure all the traditional vaccines, injection safety materials and cold chain equipment for use during routine immunization and supplementary immunization activities, (except for pentavalent which is funded by GAVI and co-funded by the Government of South Sudan). UNICEF has been responding to the cold chain needs, replacing old refrigerators to ensure adequate cold chain storage capacity. The armed conflict that broke out in the December 2013, led to the destruction of infrastructures, including cold chain equipment especially in the three states of Unity, Upper Nile, and Jonglei. There has been frequent vandalization of cold chain equipment.

Cold chain equipment inventory was conducted in 2012 and updated in 2015 and 2016. All cold chain equipment purchase is done through UNICEF except in few cases where NGOs provide domestic and absorption refrigerators in health facilities they manage. There is weak capacity at all levels to manage cold chain and logistics The Logistics Management Information System (LMIS) System, including monitoring of vaccine use and wastage, is weak.

The cold chain volume/capacity has been increased progressively from 2013 to-date through the Cold Chain Expansion Optimization and cold chain contingency plans that are in place. However, there is low coverage of cold chain equipment at health facility (36%) and County (80%) levels. The vaccine distribution follows pull system where requests are submitted to EPI program by States that determine the supply to State and county level. The limited transport, especially at State and County levels, affects the supply distribution and other EPI services. There is the high cost of operation for cold chain maintenance, use of fuel for generators at national and State levels and transport to delivering vaccines to State and Counties using chartered flights.

There are good vaccine management practices at the national level (e.g. Temperature monitoring, use of fridge tags). Health workers have been trained on EVM and LMIS SOP in 6 states since Jan 2017. Cold chain officers and maintenance officers are assigned at national and sub-national hubs. However, there is a shortage of qualified cold chain technicians to address minor cold chain maintenance issues. Effective Vaccine Management Assessment is planned for 2018.

2.8 Program Management

The Health Management Information System (HMIS) is coordinated under the Directorate of Policy, Planning, Budgeting, and Research. As monitoring and evaluation are recognized as a

priority the HMIS has prioritized 47 indicators including immunization that is monitored regularly through the routine HMIS since 2011. The completeness of reporting has improved from 47% (2012, 76% (2013), 74% (2014) and 85% (2015). There was a decline to 68% in 2016 however, the timeliness of reporting has been low at 25%. In addition, the implementing partners do not submit immunization reports regularly and timely.

The country is experiencing challenges in data management as health information is increasingly less complete at the county, state and national levels due to weak human resource capacity, difficult terrain, and communication and transport systems. This has been aggravated by the conflict in the country. There are two systems in which EPI data flows to the national level; one is vertically through the EPI Managers at the state level to the EPI Directorate and the other is through the DHMIS. The two systems use different population denominators as the DHMIS use projections from the 2008 census and the EPI program adjusted the 2008 census figures to include returnees and refugees. The two systems need to be harmonized (DHIS and RI data). The migration to DHIS II is planned to start in 2018 with the recording and reporting tools updated to include the new vaccines.

A data quality assessment and EPI cluster coverage survey were conducted in 2017. MOH and partners including WHO and CDC/AFENET are developing a data quality improvement plan based on the assessment findings. Data quality training will be conducted involving states and counties in 2018. The training would enable the state data managers to use the data management tools, monitor the data regularly and present the data for timely use as data is not effectively used for action in most states. Besides the existing data collection structure, “Integrated Community Mobilization Network” has institutionalized bi-weekly data collection from community level featuring household survey, immunization, missed children and other critical data for all thematic areas.

There were several assessments that were conducted in 2012; the EPI Coverage Survey and the Cold Chain Inventory. EPI and VPD surveillance review was conducted in 2017 and the major findings and recommendations have been incorporated in this cMYP. The country is hopeful that funds will be mobilized to enable implementation of the recommendations from these assessments and improve the program’s performance, as lack of funds also affects the supportive supervision planned for at national, state and county level.

3. Programme Characteristics, Objectives and Strategies

The Government of South Sudan, through the Ministry of Health, is committed to the immunization program as a pillar of child survival and improvement of child health. The main objective of the EPI is to reduce the morbidity and mortality of children from vaccine-preventable diseases. The program has the following broad objectives:

- To provide children and women of reproductive age with safe vaccines, by improving and expanding delivery points for immunization to reach every community.
- Accelerate the reduction of morbidity and mortality from vaccine-preventable diseases through accelerating vaccine-preventable diseases eradication, elimination, and control activities, the introduction of new and improving coverage with under-utilized vaccines
- To build onto the current AFP/measles surveillance structure a comprehensive surveillance for all other VPDs including MNT and strengthen health information system and data management
- To strengthen the management capacity of the EPI program and integrate EPI with other programs
- To support increasing community demand for immunization services through comprehensive social mobilization and communication activities.

Protect the children and women of reproductive age in South Sudan from vaccine-preventable diseases using safe and potent vaccines

According to the 2016 WUENIC, the DTP3/Penta3 coverage for 2016 was 26% with only 14% of the counties achieving at least 80% coverage which shows that there are many communities that are not being reached by the program. The armed conflict erupted in South Sudan played a major role in the decline of all the indicators.

For the period of this plan, the country aims at improving access and utilization of immunization services by increasing the number of service delivery stations and using innovation vaccine delivery strategies. The facilities which currently do not provide immunization service delivery will now be provided logistical support such as the provision of safe and potent vaccines, cold-chain equipment, training, and human resources as these facilities did not previously have those resources. To increase utilization of services, the focus will be given to creating demand for immunization services in addition to providing adequate knowledge, skills attitudes for the health workers to create a user friendly service delivery environment. Equal emphasis shall be given to ensuring equitable service provision to address unreached and vulnerable population. It is also envisaged that the Boma Health Initiative, the committees will be used to link the services to the community. Efforts will be made to reduce the high drop-out rates through defaulter tracing by the Home Health Promoters and integrating immunization services with other interventions. The targets for the routine immunization program are depicted in Table 3.

Accelerating the reduction of morbidity and mortality from vaccine-preventable diseases through disease eradication, elimination and control activities

Converged efforts will be made to accelerate gains on child morbidity and mortality reduction through effective vaccination program with existing vaccines. Over the course of the planning period, new and underutilized vaccines such as Rotavirus, PCV, HPV,

Meningococcal Conjugate Vaccine, Yellow Fever Vaccine, etc. will be introduced in a form of SIAs and/or in the RI to maximize their public health benefit.

Strengthen EPI Surveillance, Health Information, and Data Management

South Sudan has been achieving the standard AFP surveillance performance indicators but has not achieved the same for measles and maternal and neonatal tetanus case-based surveillance. The country will establish case-based surveillance for neonatal tetanus and with support from WHO, this should be done before the end of this cMYP. Sentinel surveillance for Hib and Rotavirus will be established. The program will work with the Directorate of Planning, Monitoring, and Evaluation to harmonize the two management systems (EPI and DHMIS) and then strengthen the DHMIS so that immunization data will be collected through the DHMIS only.

Strengthening the management capacity of the EPI program and its integration with other interventions

During this period the country and partners are planning to conduct several activities that will concentrate on the national capacity building especially in the field of program management plan development, implementation, monitoring, and supervision and all other aspects of the EPI/PEI program. The program will integrate vitamin A supplementation and deworming during its campaigns. There is a need to identify other opportunities/interventions for integration that will benefit the child as well as the program. This objective aims to improve the availability of skilled health workers for EPI at all levels and enhance their capacity and enhance productivity through the institutionalization of a performance-based incentive package. At the same time, strides to successfully integrate polio assets into EPI will be made to improve their utility.

Given the fact there are multiple actors in the EPI program working at the national and sub-national level, regular coordination & accountability mechanism shall also be instituted at all levels to increase the efficiency of joint planning and monitoring of progress in performance.

Strengthening Advocacy and Communication

Social mobilization and communication play a very critical role in the efforts to improve and sustain coverage in the routine immunization program, eradicate polio and eliminate measles and maternal and neonatal tetanus. The goal of immunization communication is to engage with communities and parents in order to facilitate demand and understanding of the importance of immunization. During the lifespan of the cMYP, there will be an investment in building and strengthening social mobilization networks that will engage with communities to stimulate and sustain high levels of immunization demand. It will be important to involve and engage high-level community leaders as champions of the immunization program. A KAP study was conducted in 2017, and this together with the EPI and VPD surveillance review, will inform and guide the development of the Communication Strategy for both routine and supplemental immunization.

Table 4: Baseline and annual targets for 2017 – 2022

	2017 (Baseline)	2018	2019	2020	2021	2022
Total population	12,601,591	12,979,639	13,369,028	13,770,099	14,183,202	14,608,698
Births (4.0%)	504,064	519,186	534,761	550,632	567,151	584,165
Infant deaths	51,415	52,957	54,546	56,164	57,849	59,585
Surviving infants	452,649	466,229	480,215	494,468	509,302	524,580
Pregnant women (4.0%)	504,064	519,186	534,761	550,632	567,151	584,165
BCG Coverage	62%	73%	80%	85%	88%	90%
Penta-1	77	73%	80%	85%	88%	90%
Penta-3	59	60%	70%	80%	83%	85%
OPV-3	58	60%	70%	80%	83%	85%
MCV-1	75	75%	78%	80%	83%	85%
TT2+ Preg	49	52%	54%	56%	58%	60%
Penta-1 to Penta-3 dropout rate	18%	18%	18%	18%	18%	≤10%

Table 5: Opened vial vaccine wastage rate

	2017 Estimated Baseline	2018	2019	2020	2021	2022
BCG	75%	75%	75%	75%	75%	75%
Penta	25%	25%	24%	23%	22%	≤ 20%
OPV	25%	25%	24%	23%	22%	≤ 20%
IPV	15%	15%	15%	15%	15%	15%
Measles	25%	25%	24%	23%	22%	≤ 20%
TT	25%	25%	24%	23%	22%	≤ 20%

Table 6: South Sudan progress towards GVAP targets of 2020 as at end of 2016

Global/Regional Immunization Targets as of 2016			
Indicator	**Target**	**Performance**	**Remarks**
Polio Eradication	0 case	0	Latest case June 2009 cVDV2 outbreak in 2014 and closed in 2016
Global/Regional Elimination targets -Measles -MNTE	<1 case/million <1case/1,000LB/country	16.3/million Catch-up conducted	Off track for measles pre-elimination target & Pending for MNTE
Meeting vaccination targets in every district	Penta3: 90% National 80% Counties	45%* 11% had ≥80% in 2016	Off track
Introduce new vaccines & technologies	At least 1 or 2	2	IPV and Penta: on track Rota, MCV2, PCV pending
Exceed MDG on target of Child Mortality	95/1,000LB**	105/1,000LB	Off track

*Source: *Official estimate in JRF, 2016, **EPI Coverage Survey, 2012; SSHS 2010*

The following table summarizes the progress of key EPI program subsystems indicators during 2012-2017:

Table 7: Situational analysis by accelerated disease control initiatives based on previous years' data, South Sudan, 2012 – 2017

System components	Suggested indicators	National					
		2012	2013	2014	2015	2016	2017
Polio	*OPV3 coverage*	75%	64%	64%	63%	43%	58%
	% of districts with > 80% coverage	29%	13%	11%	39%	11%	30%
	Number of SNID rounds conducted	0	2	0	2	2	0
	SIAD	0	0	1	2	0	0
	NID	4	4	4	4	2	4
	Non polio AFP rate per 100,000 children under 15 yrs. of age	4.00	4.28	3.89	4	3.93	4.72
	Proportion of counties with NPAFP rate of >2 per 100,000	89%	90%	75%	84%	75%	67%
	Number of confirmed WPV cases	0	0	0	0	0	0
	Sabin Isolation rates	2.0	2.8	2.2	4.5	3.2	4.4
	MPENT from AFP cases	15%	19%	10%	10%	21%	18%
MNT	*TT2+ coverage*	54%	46%	44.54%	47%	38%	49%
	Number of counties reporting > 1case per 1,000 live births	ND	ND	ND	ND	ND	ND
	Was there an SIA? (Y/N)	Y	Y	Y	Y	Y	N
	Number of counties completed 3 rounds	0	16	3	47	47	47
Measles	*Measles coverage*	76%	80%	71.51%	70%	52%	75%
	Number of outbreaks reported	NA	12	25	8	44	20
	Number of reported suspected cases	2,052	673	556	538	1,132	855
	Proportion of suspected cases with serum investigation	3.23%	2.93%	2.39%	2.31%	3.14	37%
	Proportion of counties that investigated at least 1 measles case	44.3%	53.2%	39.2%	49.4%	48.1%	34%
	Measles outbreak response: age group *Coverage*	6-59 M 90.3%	No outbreak response	6-59M 122%	No outbreak response	6-59M 106%	No outbreak response
	MCV2 introduced	N	N	N	N	N	N

Table 8: Situational analysis of routine EPI system components based on previous years' data, South Sudan, 2012 – 2017

System components	Suggested indicators	National					
		2012	**2013**	**2014**	**2015**	**2016**	**2017**
Routine Coverage	*National DTP3/Penta-3 coverage*	75%	64%	57.6%	62%	45%	59%
	% of districts with > 80% coverage	38%	23%	25%	39%	14%	30%
	National DTP1-DTP3/Penta-1-Penta-3 dropout rate	18%	20%	20%	17%	23.7%	24%
	Percentage of counties with dropout rate DTP1-DTP3/Penta 1- Penta-3 >10%	13%	45%	40%	64%	79%	78%
Routine Vitamin A supplementation	*National vitamin A coverage: 6 – 11months*	ND	ND	ND	ND	ND	ND
	National vitamin A coverage: 12 – 59 months	ND	ND	ND	ND	ND	ND
New vaccines	Penta introduced	-	-	April 2014	-	-	-
	Pneumococcal introduced	N	N	N	N	N	N
	Rotavirus introduced	N	N	N	N	N	N
	IPV	-	-	-	Dec. 2015	-	-
Routine Surveillance	*% of surveillance reports received at the national level from counties compared to number of reports expected*	ND	88%	86%	76%	90%	57%
	Quality of surveillance data sufficient? (Y/N)	N	N	N	N	N	N
Lab Surveillance	*% of suspected meningitis cases with CSF collected*	0	0	0	0	0	0
	% of stool specimen collected from diarrhoeal cases in under fives	0	0	0	0	0	0
Cold chain/Logistics	*Number of Health facilities with functional cold chain*	NA	NA	NA	NA	NA	36%
Immunization safety	*Percentage of districts supplied with adequate (equal or more) number of AD syringes for all routine immunizations*	100%	100%	100%	100%	100%	100%
	Percentage of counties supplied with safety boxes	100%	100%	100%	100%	100%	100%
	Immunization safety assessment conducted	N	N	N	N	N	N
Waste Management	*Percentage of counties with proper sharps waste management systems*	NA	NA	NA	NA	NA	NA

Vaccine supply	*Was there a stock-out at national level during last year? (Y/N)*	N	N	N	N	N	N
	If yes, specify duration in months	-	-	-	-	-	-
	If yes, specify which antigen(s).	-	-	-	-	-	-
	The proportion of health facilities reporting stock outs	NA	26%	NA	NA	NA	NA
Communication	*Availability of a plan? (Y/N)*	Y	Y	Y	Y	Y	Y
	Percentage of counties which have developed EPI communication plans	0%	0%	0%	0%	0%	0%
	Percentage of caretakers of children < 1yr understanding the importance of routine immunization.	ND	ND	ND	ND	ND	ND
Financial sustainability	*What percentage of total routine vaccine spending was financed using Government funds?(including loans and excluding external public financing)*	0%	0%	0%	0%	0%	0%
Management planning	*Are a series of county indicators collected regularly at the national level?(Y/N)*	Y	Y	N	N	N	N
	% of reports received at national level from counties compared to the number of reports expected (Completeness of reporting)	90%	80%	ND	ND	ND	ND
	Percentage of all counties with micro-plans.	100	100	60	60	60	70
Research/studies	*Number of vaccine-related studies conducted/being conducted 2012: **Vaccine Management Assessment**; EPI Coverage Survey and Cold Chain Assessment. 2013 Bottlenecks analysis*	3	1	0	1	0	1
NRA	*Number of functions conducted*	ND	ND	ND	ND	ND	ND
National ICC	*Number of meetings held last year*	2	5	6	3	4	4
Human Resources availability	*Percentage of sanctioned posts of vaccinators filled*	ND	ND	ND	ND	ND	ND
	Percentage of health facilities with at least 1 vaccinator	ND	ND	ND	ND	ND	ND
	Percentage of vaccinators time available for routine EPI	ND	ND	ND	ND	ND	ND
	Number of vaccinators / 10,000 population	ND	ND	ND	ND	ND	ND
Transport / Mobility	*Percentage of counties with a sufficient number of supervisory/EPI field activity vehicles/motorbikes/bicycles in working condition*	0	0	0	0	0	0
Waste Management	*Availability of a waste management plan*	N	N	N	N	N	N
	Vaccine wastage monitoring at national level for all vaccines? (Y/N)	N	N	N	N	N	<1%

Linking to other Health Interventions	*Were immunization services systematically linked with delivery of other interventions (Malaria, Nutrition, Child health etc.)?*	N	N	N	N	N	Y
Programme Efficiency	*Timeliness of disbursement of funds to county and service delivery level*	N	N	N	N	N	N
	All health facilities monitoring AEFI	N	N	N	N	N	N
	Data Quality Self-assessment conducted in all counties	N	N	N	N	N	N
	Effective Vaccine Management Assessment conducted	Y	N	N	Y	N	Y
	Review of IIP modules	Y	Y	Y	N	N	Y

Table 9: Strengths and weaknesses of EPI system components, South Sudan

System component	Strengths	Weaknesses
Vaccine supply and quality	**<u>Procurement and distribution</u>** • Timely forecast and procurement for vaccines and injection safety materials through UNICEF • All vaccines, injection safety materials and equipment used in the EPI program and at all levels in South Sudan conform to WHO standards and are contained in the WHO Product Information sheet (PIS) • Vaccine distribution follows pull system • Availability of cold boxes for vaccine distribution **<u>Vaccine management</u>** • Good vaccine management practices observed at the national level (e.g. Temperature monitoring, use of SMT and VIVA) • Availability of SOPs and Guidelines for improved vaccines management practices • Vaccines are stored under appropriate storage conditions and monitored twice-daily at national and state levels. • Availability of VVM on all vaccines; • Multi-Dose Vial Policy (MDVP) introduced and adapted in the national Policy implementation guidelines for immunization adopted in 2009. • MDVP being practiced at service delivery level to reduce high vaccine wastage. • Availability of EPI data collection tools at all level to improve stock management • The improvement plan of the EVMA is being implemented for effective vaccine management practices. • The existence of a national logistic management group. • Introduction of Fridge-tag for continuous temperature management in refrigerators	• No Government budget line for traditional vaccine procurement • Failure of Government to pay its co-financing commitments to GAVI. • There is an inadequate stock control system for vaccines and other EPI supplies, especially at service delivery level. • Lack of dry storage facility for the National EPI • Weak stock management monitoring at state and county levels. • Insufficient human resources at the state level for the maintenance of the cold chain. • Low coverage of cold chain equipment; at the facility (36%) • Inadequate transport means esp. at State and County levels to support supply distribution and other EPI services • Frequent looting and vandalization of cold chain equipment especially at county and facility levels. • The high cost of maintaining cold chain equipment at national and state level (use of generators) and high operation cost (use of chartered flight to deliver vaccines)
Cold chain/Logistics	**<u>Cold Chain</u>** • Increased capacity of cold chain volume at national and state levels (procured 3 cold rooms (50 cubic meters each) for the 3 regional hubs using GAVI/HSS grant through UNICEF) • Cold chain inventory conducted in 2012 and it is regularly updated. • Availability of standby generators at national and state levels cold chain stores.	• Lack of integrated LMIS for immunization which has resulted in irregular updating of cold chain equipment and vaccines/supplies utilization. • Inadequate capacity for cold chain installation and maintenance at state and county levels due to lack of technicians, funds and transport to reach all cold storage. • Inadequate incinerators at the health facilities. • Some health facilities still have the obsolete cold chain equipment. • Inadequate transport for supplies and vaccines delivery at county and state level.

System component	Strengths	Weaknesses
	• The existence of a cold chain rehabilitation plan through CCEOP funded by GAVI • Availability of technicians for cold chain maintenance and installation at the national level. **Injection safety and waste management** • AD syringes are now widely available for immunization services. • All ADs and reconstitution syringes are supplied with adequate safety boxes for safe disposal. • Health workers exhibit fair knowledge of injection safety and waste management theory. • Waste segregation is being applied for both immunization and other curative services in the health facilities. **Opportunities** • Presence of partners and donors to support EPI services including cold chain and logistics; • Implementation of CCEOP to strengthen cold chain system at county and health facility levels. • Availability of GAVI-HSS funding to support immunization services and cold chain. • Presence of technical support from partners and training of EVM of health facilities, county and state cold chain staff.	• Irregular energy (gas or kerosene) supply to the states and lower levels. • Inadequate supply of spare parts for the aging refrigerator network. **Weaknesses (Injection safety)** • Inadequate immunization waste management guidelines and practices at all levels. • The national injection safety policy was not revised to include use of ADs for all health services. • There are no functional injection safety institutional arrangements (injection or immunization safety technical working committee) to steer health system-wide changes in policy and practice • Improper use of pits at health facilities. • There is no inventory of incinerators or alternative injection waste disposal facilities anywhere in South Sudan **Threats** • Frequent vandalization of cold chain equipment (about 15% in 2017) • Worsening economic situation coupled with high cost of cold chain equipment • High cost of operation (cold chain maintenance, use of generators at National and State levels) and delivering vaccines to State and Counties (chartered flights) • Over-reliance on donors for cold chain • Competing job market with difficulties to retain qualified staff • Use of one flight carrier for vaccine delivery to the states and 30 counties (UNHASS).
Service delivery	• Conflict-affected and hard to reach areas have been identified, mapped and strategies designed to reach those areas • RED micro plans developed in 19 counties. Nearly complete in NBG, WES and Lakes states; In progress in Warrap, WBG and CE states • Presence of partners assisting in the service delivery in most areas • HFs visited in most states provide immunization services • Health facility micro plans present in some states but not all • In NBG Outreach sites have been identified to access all Bomas & vaccinators are knowledgeable on the basics of	• Guidelines out-dated (Immunization In Practice, EPI Policy) • Inadequate quality of health service delivery • Community health system is generally underdeveloped • Missed opportunities for RI, in emergency response • Competing priorities to implement RI because of repeated campaigns (4 rounds of polio, measles, etc.), many surveys, assessments, studies, external missions, etc. • Catchment area for health facilities not clearly defined/known. • Poor utilization of data for decision making at points of collection • Minimal and/or no involvement of the private sector and community in planning and implementation of services especially outreaches. • Irregular functioning of outreaches due to lack of transport and delayed

System component	Strengths	Weaknesses
	vaccine management and administration • Outreach session conducted by all health facilities visited in Central Equatoria State (Only in Juba Town). • Reductions in morbidity due to VPDs e.g. interruption of Wild Polio Virus Outbreak, unquantified measles, and whooping cough control. • Integration of EPI with other Child survival strategies e.g. Vit A supplementation, deworming, and ITN distribution. (only during SIAs). **Opportunities** • Boma Health Initiative developed to be rolled out- link with the community • Identified reasons for low coverage using rapid survey in 3 states • Presence of donors including Gavi and IPs at lower levels • The ongoing EPI coverage survey for decision making.	payment of duty facilitating allowances. • Inadequate and limited number of qualified human resources for immunization • Lack of motivation of the existing EPI personnel at all levels in term of salaries • Limited supportive supervision at all levels; • Poor commitment to EPI service delivery (CHDs, HF In –charge and some IPs) • In Jonglei only 3/11 and Upper Nile only 3/13 counties are accessible • In most states there is poor supervision from County and state level to HFs • In Upper Nile IMA/ the fund manager is not on the ground and EPI Partners not meeting to discuss and develop plans • Not all HFs are conducting outreach sessions • Many counties and HFs are not developing a comprehensive Reaching Every County (REC) micro plans • No mechanism or plan in place for defaulter tracing in many areas
Advocacy and communication	• Communication and advocacy have a lasting impact on the decline of VPDs. A well-developed national communication strategy for polio and its subsequent methodical implementation resulted in much-focused demand generation and awareness. • EPI communication activities are articulated in both the cMYP and annual plans of action for the immunization program • Availability of media houses (local FM radios) in almost all the States that are used for dissemination of health messages including immunization. • 10 C4D Officers and 3 STOP Communication Consultants are providing managerial and technical oversight in all the 10 states of the country to ensure the quality of demand generation activities. • The UNICEF C4D unit has supported development of a national communication strategy and state-wide communication plans, both for routine and supplemental Immunization activities. • Knowledge Attitude Practice assessment has been concluded and the report will be available soon. Findings will • be used for planning in the future. • Introduction of social maps in 3 states for improvement of	• The Health Education and promotion policy & Strategic plan for health (integrated) includes EPI but under revision as it is outdated (2009) • The Social mobilization working group works more for SIAs • Linkage of demand creation with Health service delivery • Poor/inadequate inter-personal communication between health workers and caretakers • Low community participation in planning and delivery of EPI services • Limited presence and coverage of IEC materials mainly for routine compared to SIAs • No facility presented an advocacy and communication plan for immunization services regardless of the fact that health facilities form the link between service provision and the community. • Village Health committees are expected to document community-related issues to immunization service providers and discuss them at quarterly health facility functionality meetings, and yet they do not. • Negative community perceptions on immunization namely: - "Vaccines make children sick", indicating the defects in health education at EPI sessions - Immunization not priority amongst the competing gender roles of women - Routine immunization centers considered far from their residence - Cost (direct and indirect) of routine immunization considered high - Community members felt that their needs are not listened too and

System component	Strengths	Weaknesses
	quality of micro-planning, deployment and monitoring. It is currently being rolled out in remaining seven states of the country. **Opportunities** • Media partnership expanded to 32 radio stations (national & State); use of nine local languages for health promotion • National Social mobilization technical working group is operating actively	properly attended.
EPI Monitoring and VPD Surveillance	• Interrupted the biggest wild polio virus outbreak in June 2009. • There is a functional and adequately constituted National Polio Expert Review Committee (NPERC) • Guidelines available IDSR (2013) & AFP surveillance revised 2017 • Data system for AFP surveillance exists nationwide with regular feedback to sub-national level • Nation-wide community-based surveillance for AFP/Polio, even in security-compromised states/counties • Sustained main AFP surveillance performance standards • Evidence of Active surveillance visits to HFs with a link to community informants in security-compromised counties • National Public Health lab has capacity of ELISA testing for measles/rubella • Case definition guidelines for MOH priority diseases have been developed, printed and charts of these definitions are available in all States and Counties	• VPD surveillance not integrated with existing opportunities • Measles and Neonatal Tetanus surveillance indicators not met • Limited recent training in VPD surveillance • Laboratory support for other VPDs surveillance limited • supportive supervision not regularly conducted • AEFI surveillance not initiated except in SIAs • Outbreak investigation reports limited • There exists no system for establishing burden of disease for vaccines planned for introduction namely (Rotavirus, Pneumococci) • Private sector not involved in VPD/IDSR surveillance activities. • Community based surveillance system is very strong for AFP/Polio. However, these community surveillance structures are not used for other IDSR priority diseases • Irregular supply of data collection tools (Tally sheets, Child health Cards, Summary sheets) causing stock out at health facility and county levels. • Lack of a system for monitoring of AEFIs in the country. • Child registers are not being used to track dropouts. • Data Quality Audits and self- assessment not being done regularly
Programme management	**Policy, planning and management** • Strategic plan developed with assistance of partners • Presence of EPI Policy at the national level • Structures for partner coordination are in place at the national level: ICC remains a functional coordination mechanism for all immunization partners. • Regular EPI technical meetings at national level **Supervision** - Presence of standards and guidelines for monitoring/supervision at National level - Technical assistance provided by partners for specific areas.	• Inadequate coordination of partners at state and county levels. • Lack of routine review meetings at County & lower levels • Weak managerial capacity for routine immunization in most counties • Irregular technical support supervision visits especially from center to States, from States to counties and from counties to health facilities. • Lack of monitoring and supervision guidelines at State and lower levels • Lack of support supervision tools at State and lower levels. • Limited feedback practices between the States and counties

System component	Strengths	Weaknesses
	Operational Research • On-going research to document the prevalence of Hepatitis B at Birth to support new vaccine introduction **Opportunities** • Technical working group at national level exists to coordinate planning and implementation of activities with immunization supporting partners	• No/inadequate operational research being done • Lack of skills and practical experiences in EPI operations research
Governance and leadership	**Strengths** • Political will – Commitment to the Addis Ababa Declaration on Immunization • Specific policies and strategies exist for the Health sector – Health policy framework 2013-2016; National Health policy 2015-2026 & National health Sector strategic plan 2016-2021 – Basic package of Health and Nutrition **Opportunities** • Council of ministers involved in Health issues; Parliamentary Health committee • Boma Health initiative launched • Selection of implementing partners • Health summit	• Joint planning is limited between Government, funding managers and Implementing partners resulting in non- alignment of planning
Strengthening human and institutional resources	• Complementary mechanism in place for human resources development for Immunization program support • AFENET is supporting mentees assigned at national and subnational with time bound contract and MOU with Government for taking over • The immunization in practice manual is adapted for the republic of south Sudan and used to train vaccinators and Supervisors **Opportunities** • Training institutions exist that can be leveraged to producing more qualified work force for services • Presence of direct Technical support from partners (JSI, UNICEF, WHO including field) • HSS Gavi support under discussion for key human resources stop gap as interim strategy	• Poor and delayed remuneration of HWs at all level (salaries & allowances) • Vacant posts in National EPI (3) ; high staff attrition ; inadequate number and skill mix • Very limited opportunities for in-service training for Routine Immunization • Inadequate production of health workers & low recruitment by local governments • Both HRH policy and strategy documents have expired and new ones are yet to be developed (Sudan Human resources for Health plan 2012- 2016 & Human Resources policy 2012-2016) • No mid -term reviews done for the expired Human Resources for Health plan policy and strategy document • Limited coverage of training of vaccinators using the Immunization in practice manual • More emphasis on on-job training versus pre-service training • Insufficient EPI content in the pre-service curricula of Health training institutions.

System component	Strengths	Weaknesses
Sustainable financing	• A budget line for EPI operations financing was established in the financial year 2008 and remains until this date • GAVI/ISS and USAID/WHO funds available at State and County levels for implementation of EPI activities through direct disbursements • Several NGOs implementing Primary Health Care in the states consider and provide immunization as a basic intervention in their package of services	• Inadequate budget allocation by the Government, currently 2% of Govt budget is for Health • Weak platform for coordinating donor financing for Primary Health Care interventions including immunization • Weak financial management capacity at all levels • Utilization rate of Gavi Health System Strengthening funding very low at country level • Co-financing obligations not met since 2014 despite flexible payment schedule proposed by Gavi • Lack of Vaccine Independence as UNICEF in South Sudan finances and procures all the vaccines and supplies needs of the program. • No documented contribution of State governments to immunization operations from the local revenue sources
New and underused vaccines	• Political and technical will to introduce new and underused vaccines • New and underused vaccines introduction defined in the cMYP for S/Sudan • GAVI eligible for NUVI at 80% DPT 3/Penta 3 coverage and GDP of less than 1,000USD per capita	• PCV,YF, MMR and Rotavirus vaccines have not yet been introduced
Accelerated Disease Control	**<u>Polio Eradication</u>** • Interrupted the biggest ever WPV outbreak in June 2009 and continues to enjoy Polio free status to date • Polio importation and preparedness plans with defined social mapping available at state and National Levels. • Preventive and outbreak response activities successfully continuing through 2010 and 2016 with 4 rounds of OPV/NIDs conducted annually • Surveillance is functional at all states + supplemental measures • Security compromised states supported by Partners • Use of Polio SIAs to boost immunity in interim to address low population immunity • Guidelines available IDSR (2013) & AFP surveillance revised 2017 • Data system for AFP surveillance exists nation-wide with regular feedback to sub-national level • Nation-wide community-based surveillance for AFP/Polio, even in security-compromised states/counties	• South Sudan yet to be declared Polio-free

System component	Strengths	Weaknesses
	• Sustained main AFP surveillance performance standards • Evidence of active surveillance visits to HFs with link to community informants in security-compromised counties • Integrated EPI and VPD surveillance review conducted in 2017	
	Maternal and Neonatal Tetanus Elimination • Gradual increase in TT2+ coverage among women of reproductive age	• No Maternal and Neonatal Tetanus Elimination status review and documentation in South Sudan • TT card like Child Health Card retention is still poor among reproductive age • Neonatal Tetanus surveillance indicators not met
	Measles Control • Presence of strategic plan towards the elimination • National Public Health lab has capacity of ELISA testing for measles/rubella	• Low population immunity predisposing to recurrent measles outbreaks • Surveillance is not optimal that may delay confirmed outbreaks • Public health lab functionality challenges • VPD surveillance not integrated with existing opportunities • Limited recent training in VPD surveillance • Laboratory support for other VPDs surveillance limited • Supportive supervision not regularly conducted • AEFI surveillance not initiated except in SIAs • Outbreak investigation reports limited
	Meningococcal Meningitis • MenAfrVac phase I conducted in 2016 covering 6/10 former states • Phase II conducted in 2017 covering Jonglei, Unity, Upper Nile & WES • Lessons available from MenA campaign among the refugee population • previous successful measles and polio campaigns lessons from OCV campaigns in the IDP camps	• Last country in the Meningitis belt that is yet to complete catch-up campaign for MenAfrVac
Data Management	• Immunization reports are submitted every month • Feedback is provided from national level monthly to State and partners for action • EPI coverage survey and immunization information assessment in 2017 will be used to develop data quality improvement plan	• Implementing partners do not submit Immunization reports regularly and timely (RI Timeliness of reporting is only 25%) • The non- inclusion of some variables in DHIS has allowed parallel reporting for immunization • Absence of regular supportive supervision to States, Counties and HF • Absence of regular performance review meeting including data review

System component	Strengths	Weaknesses
	• Some states have data managers (M&E officers) • Updated tools for data collection and reporting available in all states except Upper Nile. • In NBG and Lakes EPI performance monitoring chart are available and updated. • There is data accuracy in NBG and Lakes, tally sheet and reports have the same number • In NBG timeliness and completeness of RI reporting is systematically monitored • ICMN reports are being received every two weeks **Opportunity** • DHIS II migration to be used to improve the functionality at the 2nd administrative level to capture the required variables of the service delivery elements (e.g. planned sessions, community meetings, vaccines stock outs etc.)	• Absence of simplified data tools • Poor archiving of reports at many visited states • Data is not effectively used for action in most states • Lack of data harmonization between DHIS and RI data • Supervision and data quality assessment is not happening regularly

4. EPI and VPD Surveillance Review Major Recommendations and Action Points

The review team made a special appeal to the Senior MOH management and Partners to support the program coordination and financing by requesting them to expedite the recommendations and action points as summarized in the table below.

Table 10: EPI and VPD Surveillance Review Major Recommendations and Action Points, 2017

System Component	General Recommendations
	• The Ministry of Health representatives at all levels should convene partners' stakeholder meetings, to discuss measures for ensuring accountability for program performance and resource utilization through strengthening of leadership, coordination and management. • The Implementing partners (especially NGOs) should ensure integrated planning of activities through the authority of the CHDs to align national priorities and results monitoring. • The Donors should initiate flexibility in their policies that take into account the fragile nature of the current system. • UN agencies (especially WHO and UNICEF) should allow for some level of flexibility in their current mandatory regulations, to be more responsive to multiple systemic needs in the prevailing context of South Sudan.
	Specific Recommendations
Partnership and coordination	• Institute mechanisms for regular coordination and accountability at all levels to increase the efficiency of joint planning and monitoring of progress in performance (MOH and partners). • Strengthen TWG at all levels (National, State, and County) with the involvement of implementing partners and fund managers to report monthly on their performance (e.g. of Lake State best practice scale up).
Human Resources	• Urgently develop an interim strategy to retain staff (salaries enhancement and other incentives) (a mechanism to be put in place). • Create a Cadre of community disease control officers such as field epidemiologist to include Immunization and surveillance /Initiate certified training programs on Immunization for

	mid-level care of health or clinical officers (Concept note to be developed; HR expertise guidance by WHO and others).
Finances	• MOH should introduce budget line item, at least for vaccines and supplies procurement, and should source for funds to meet the co-financing commitments based on the flexible co-financing payment schedule offered by Gavi. • MOH with support from partners should build capacity on financial management at national and sub-national levels.
Programme management and planning	• The MOH should consider elevating to directorate level, the National Immunization Program in order to promote the timely execution of decisions, in view of the ever-increasing role of the program and its management and expected coordination.
Vaccine supply Quality and Logistics	• National EPI should support the State EPI teams to institute the standard stock management to guide vaccines and supply distribution and management; institute standard vaccine ledger for vaccine receipt at sub-national level. • Work with FDA to develop guidance SOP for the disposal of non-usable vaccines and fridge tags occupying dry storage space within the central vaccine store.
Data management and quality control	• MOH EPI program supported by partners should develop, implement and monitor a multi-year data quality improvement plan. • National EPI should engage with DHIS 2 team for the inclusion of standard EPI variables to phase out parallel reporting for immunization.
Service delivery	• Use every opportunity to integrate immunization with other MCH and Nutrition services to utilize the limited resource maximally and avoid missed opportunities. • National EPI should develop mechanisms for monitoring the implementation of the review meetings and supportive supervision at the sub-national level. • National EPI and technical partners should support state and counties health departments to include appropriate strategies into micro plans for service delivery which take into account the prevailing security situation as well as the infrastructure and resource availability.

	• Link and leverage appropriate strategies in the Boma health initiative piloting for Immunization service delivery. • Expand the delivery of antigens during Humanitarian Rapid Response Missions (RRM) beyond current polio and measles vaccines and explore options for the tracing children for follow-up doses.
Demand creation and community engagement	• MOH Health education department should update the Health Education policies and strategies as soon as the KAP is completed with support from WHO and UNICEF.
Polio Eradication	• Sustain the AFP surveillance performance supported by the supplemental surveillance by maintaining the field supervisors and field assistants. • Continue risk mapping with a specific mitigation plan. • Prioritize the 60-day-follow-up of AFP cases towards the inadequate AFP cases to increase efficiency. • Finalize the transition plan for implementation o Polio transition shall happen BUT in a fragile nation with a protracted civil conflict, limited support for development assistance in favor of humanitarian funding remains a challenge to finalization of the polio transition plan.
	Implementation of the action points for the Accelerated Immunization initiatives
Measles elimination strategic specific actions to be followed	• Using PIRI to improve RI coverage • Conduct a follow-up campaign in 2019 • Strengthen case-based measles surveillance supported by efficient lab to monitor and guide action. • Consider the age shift of confirmed cases to guide next follow-up periodic SIAs.

Review of MNTE strategies	• Review risk prior to end of 2017 and identify additional high-risk counties. • Facilitate the high-risk TT SIAs implementation aligned with standards for quality SIAs. • NT surveillance promotion using lay case definition (linked with AFP surveillance).
Scale-up of Men A introduction	• Provide population protection by completing the SIAs in the remaining States. Establish Men A enhanced surveillance (lab at the national level to track progress). Consider introduction into RI from 2020.
Yellow Fever vaccine introduction	• Implement the YF SIAs in high-risk areas in 2019 if accessible and introduce in RI as per the yellow fever risk assessment result conducted in 2015.
AEFI surveillance	• Re-distribute the AEFI case based form, train officers, and monitor use • Provide advanced causality assessment training to the national AEFI committee, and basic training for health workers on AEFI
New vaccine burden of disease documentation	• Establish sentinel surveillance for new vaccines introduction and monitoring of impact (Rota, PBM, CRS retrospective review, Men A enhanced surveillance)
Best practices identified	• The use of joint program planning and coordination using planning review matrix with inclusion of Implementing partners from County in Lakes State and at County in Western Bahr El Ghazal is to be scaled up • The use of Integrated supportive supervisory tool through the AFP surveillance monitoring using Open Data Kit platform

5. Program Objectives and Milestones

The objectives and milestones are summarized below together with AFRO Regional goals.

Table 11: National objectives and milestones, AFRO regional and global goals

National priorities	NIP Objectives	NIP Milestones	AFRO Regional goals	Order of Priority
Routine Coverage/Service Delivery				
National DPT/Penta containing vaccine 3 coverage 59% in 2017	Increase and sustain Pentavalent 3 coverage to 85% by 2022	2018: 60% 2019: 70% 2020: 80% 2021: 83% 2022: 85%	By 2020 all counties will have routine immunization coverage of 90% nationally with at least 80% coverage in every county	**1**
30% counties achieved at least 80% coverage in 2017	Increase proportion of counties with at least 80% coverage from 30% in 2017 to 80% in 2022	2018: 35% 2019: 45% 2020: 60% 2021: 70% 2022: 80%		**1**
National Pentavalent 1 – Pentavalent 3 dropout rate was 19% in 2017	Reduce dropout rate from 18 in 2017 to less than 10% in 2022	2018: 18% 2019: 16% 2020: 14% 2021: 12% 2022: ≤10%		**1**
National EPI programme review last conducted in 2017				

National EPI coverage survey last conducted in 2017	To assess EPI performance and suggest recommendations conduct EPI review To assess the status of EPI coverage conduct National EPI coverage survey	2022: National EPI programme review conducted 2021: National EPI coverage survey conducted		**3** **3**
Polio **31.25% counties achieved at least 80% OPV 3 coverage in 2017** **OPV 3 coverage at national level 58%% in 2017**	Increase proportion of counties with 80% OPV 3 coverage from .25% in 2017 to 80% in 2022 To attain ≥95% OPV SIA coverage in all counties	2018: 35% 2019: 45% 2020: 60% 2021: 70% 2022: 80% 2018 – 2022: ≥95%		**1**
Measles **36.25% of counties achieved at least 80% coverage in 2017** **MCV 1 coverage at national level 75% in 2017**	Increase proportion of counties with at least 80% measles coverage from 36.25% in 2017 to 95% in 2022 To increase MCV1 coverage to 85% at national and county level by 2022	2018: 35% 2019: 45% 2020: 60% 2021: 70% 2022: 80% 2018: 75% 2019: 78% 2020: 80% 2021: 83% 2022: 85%	Attain MCV1 coverage ≥95% at national and counties. At least 25 countries in the region have introduced rubella containing vaccine by 2020 Attain 95% SIA coverage in all counties	**1**
MNT	Increase national routine TT2+ coverage	2018: 52%	All countries have attained	**2**

TT2+ coverage declined from 54% in 2012 to 49% in 2017	from 49% in 2017 to 60% by 2022 To achieve at least 52% proportion Babies Born Protected from by 2018 Conduct a comprehensive verification for NNT elimination Switch from TT to Td in 2019	2019: 54% 2020: 56% 2021: 58% 2022: 60% 2018-19: Verification exercise for NNT elimination 2019: Switch from TT to Td	and validated the elimination of maternal and neonatal tetanus by the end of 2020	
Yellow Fever **South Sudan is a high-risk country, risk assessment is completed yet vaccine not introduced**	To increase population immunity and reduce risk of YF outbreaks	2020 – Approval from Gavi 2021 – conduct Catch-up of >=95% 2022 – introduce in routine immunization	All high risk countries should achieve YF coverage of 95% by 2020	**2**
Vitamin A supplementation not in RI schedule despite high rates of malnutrition, Vit. A deficiency and outbreak of measles	To reduce the risk of vitamin A deficiency and related complications in the population To introduce Vitamin A administration into routine immunization schedules by 2020 targeting at least 80% coverage	2019: SSITAG Recommendation 2020: Introduce Vitamin A into RI		**1**
Pneumococcal Conjugate vaccine **Pneumonia ranks 2nd leading cause of morbidity and mortality in under-fives**	To introduce Pneumococcal vaccine in 2020 and attain at least 85% coverage To reduce the burden of pneumococcal diseases in children under five.	2018: SSITAG recommendation 2019: GAVI Approval 2021: Introduce PCV into RI	All countries have introduced PCV by 2020	**2**

Rotavirus vaccine **Diarrhoeal ranks 2nd leading cause of morbidity and mortality in under-fives**	To introduce rotavirus vaccine in 2021 and attain at least 85% coverage To reduce the burden of diarrhoeal diseases in children under five	2019: SSITAG recommandation 2019: GAVI Approval 2019: Establish Sentinel Surveillance site 2021: Introduce Rotavirus vaccine into RI	At least 37 countries have introduced rotavirus vaccine by 2020	**2**
Meningococcal Meningitis **South Sudan is in the Meningitis Belt with high risk of outbreaks with high mortality rates**	To conduct and attain at least 95% coverage in Men A SIA To increase population immunity and reduce the risk of outbreaks	2017: 95% coverage for the SIA 2018: SSITAG Recommendation 2019: GAVI Approval 2020: introduced in routine targeting at least 80% coverage	All countries within the Meningitis belt have introduced MenAfriVac through campaigns and 15 of them have introduced it into routine immunization by end of 2020	**3**
Immunization Safety **Adherence to immunization safety practices not known: No Immunisation Safety Assessment has been conducted** **Not all health facilities monitoring AEFI**	Maintain 100% counties using AD syringes Develop Injection Safety Policy (already in EPI Policy but a broader one needed for the HSS) Improve Safe Injection Practices Conduct immunization safety assessment in 2018 All health facilities monitoring AEFI from 2019	2018 – 2022: 100% 2018: Injection safety policy developed, printed and distributed 2018: Training of safe injection practices in all EPI training included 2018: Immunisation Safety assessment study conducted 2019: 100%		**3**
Waste Management **Lack of closed off disposal sites in health facilities**	To strengthen the management of immunization waste.	2018: Waste management assessment to be conducted during CCE Inventory integrated with SARA and 2019: increase number of facilities that have closed		**1**

		waste disposal facility by 10% every year to 2022		
EPI Disease Surveillance **Not all States meeting standard EPI diseases surveillance performance indicators** **Proportion of counties with NFMRI rate of >1 per 100,000 increased from 10% in 2016 to 80% in 2022** **Lack of an integrated national surveillance system for vaccine-preventable diseases despite good AFP infrastructure** **Lab-Based Sentinel Surveillance**	To maintain the proportion of counties with AFP detection rate of ≥2 cases per 100,000 population of children < 15years at ≥80% To maintain stool adequacy rate of at least 80% in all states Increase the proportion of counties reporting at least 1 non-measles febrile and rash illness cases from 46% in 2016 to 80% in 2019 At least 80% counties collecting at least one serum sample for measles by 2019 To assess the risk of MNT by establishing case-based surveillance by 2018 and 80% cases investigated by 2020 Establish sentinel surveillance site for Rotavirus by end of 2019 To test for Rotavirus on the specimen from 80% diarrhoeal cases in under-fives by	2018 - 2022 At least 80% counties with non-polio AFP rate of ≥2/100,000 < 15 years 2018 - 2022: ≥80% 2018: 80% 2019: >80% 2019: 80% 2018: Case based surveillance established 2019: 40% NNT cases investigated 2020: 80% NNT cases investigated 2019: Sentinel surveillance site established 2019: Case-based surveillance for Rota	All countries achieve non – polio AFP rate of at least 2/100,000 under fifteen population by 2018 All countries have achieved incidence of less than one confirmed measles case per million population by 2020	**1**

Not all suspected meningitis cases have CSF specimen collected **Lack of institutional arrangements to certify existing VPD surveillance systems**	2020 To have at least 80% of all suspected cases of meningitis with CSF collected for Hib and PBM by 2020 Strengthen NITAG and continuing strengthening other certification committees including NITAG, NCC, NTF and NPEC	2019: 60% cases investigated 2020: 80% cases investigated 2018: Strengthening NITAG, NCC, NTF and NPEC committees		
Vaccine Supply **Vaccine stock control system not fully functional at all levels** **Vaccine stock control system functional in 26% facilities visited by EPI and VPD Surveillance Review**	To achieve 50% vaccine independence by 2022 To establish Logistic Management Information System and ensure effective monthly stock utilization by 2018 To increase the proportion of health facilities with functional vaccine stock control systems from 26% in 2017 to 70% in 2022	2018: 5% 2019: 15% 2020: 25% 2021: 35% 2022: 50% 2018: 40% 2019: 50% 2020: 60% 2021: 65% 2022: 70%		**1**

Team in 2017 **National Vaccine Store housed at temporary site, compromising vaccine safety and security.** **Health facilities experienced stock out of vaccines/supplies due to inadequate transportation system to sustain effective distribution of vaccines from county to health facilities, leading to stock outs**	To improve the National Vaccine Storage in terms of capacity and security by 2022 To strengthen storage capacity at national and state levels To achieve 95% vaccines/supplies availability at functional facilities by 2022 To maintain the distribution of vaccines quarterly to states and monthly to counties from 2018 To train staffs in at least 90% of health facilities on vaccine management by 2020.	2018: Finalization of design and costing as well as approval by MoH 2020: completion of construction of cold chain stores for selected states 2022: completion of construction National Vaccine Store including warehouse and EPI offices 2018:75% 2019:80% 2020:85% 2021:90% 2022:95% 2018: Deploy 2 vaccine delivery trucks and 10 multi-purpose vehicles 2018: 50% states distributing vaccines to counties 2018: 70% 2019: 90% health workers trained		

36% of health facilities have functional cold chain facilities **65/80 counties have cold chain storage facilities**	Increase cold chain coverage and capacity at the health facility level from 36% in 2017 to 80% by 2022 Increase cold chain coverage and capacity at county level from 65 counties in 2017 to all 80 counties by 2022	2018: 45% 2019: 55% 2020: 65% 2021: 75% 2022: 80% 2018: 70 2019: 75 2020: 80 2021: 80 2022: 80		**1**
Advocacy and Communications **Inadequate leadership and ownership of EPI** **Absence of EPI Communication Strategic Plan** **Inadequate communication activities for EPI**	To engage 80% of politicians and policy makers at national and state levels through high level advocacy mechanisms and EPI feedbacks services To maintain 100% provinces and districts carrying out community sensitization activities To improve on awareness	2018: 80% policy makers engaged 2018 – 2022 and beyond: 100%		**3**
Management and Planning **EPI policy and guidelines do not address new vaccines and technologies**	To review and update policy and guideline. To incorporate 100% of the required technical contents for new vaccines into the current EPI policy document by 2018	2018: Policy document updated, printed and disseminated		**3**

Poor supervision mechanisms and resources for activities at all levels **Supervision is not optimal as 33% of health facilities visited by the EPI Review Team in 2017 not supervised.**	To implement at least 80% of planned supportive supervision at all levels	2018: 40% of planned supervisory visit conducted 2019: 50% of planned supervisory visit conducted 2020: 60% of planned supervisory visit conducted 2021: 70% of planned supervisory visit conducted 2022: 80% of Planned supervisory visit conducted		
Increase in the number of states and counties with increased management requirement to deliver immunization goals **Inadequate program management skills at state and county levels**	To strengthen the management capacities at state and county levels To train all State and County teams in Middle-Level Management (MLM) of the EPI programme by 2018	2018: Adapt, adopt and print training modules 2018: 50% State and County Teams trained 2019: 100% State and County teams trained		

High level of incompleteness of data (57% completeness, 20% timeliness) **Data Quality Audit never conducted**	To achieve improved data reporting (completeness; timeliness) To increase the completeness of reporting from 64% in 2016 to 80% in 2022 Conduct Data Quality Audit in 2018	Completeness; Timeliness 2018: 60%; 20% 2019: 65%; 40% 2020: 70%; 50% 2021: 75%; 55% 2022: 80%; 60% 2018: DQAs conducted		
Program Efficiency **Low EVM score of 29% in 2015** **Limited local scientific evidence to guide programing**	To improve effective vaccine management practices at all levels by achieving ≥ 80% EVM score by 2021. To apply at least 20% of locally published evidence to guide decision making. To have 20% of EPI staff trained in research skills to conduct prioritize operational studies for program improvement	2018: conduct EVM 2018: 50% 2021: ≥ 80% 2018 - 2022: Conduct operational research to improve program efficiency and effectiveness 2018: conduct training on Operational research for 20% of EP Staff		**3**
Financial Sustainability **Challenges with meeting co-financing requirement for new vaccines and CCEOP**	To achieve 100% co-financing by 2022	2018 - 2020: Pentavalent 2019 – 2022 MCV2, HepB 2020 – 2022 PCV and Rota	**Immunization programs have sustainable access to predictable funding**	**3**

Vaccine Independence Initiative **Inadequate government budgetary allocation for EPI (0.01% of MoH budget)**	To achieve 50% VII by 2022 To achieve 15% of expenditure on immunization financed from domestic resources	2018: 5% 2019: 15% 2020: 25% 2021: 35% 2022: 50% 2018: 3% 2019: 6% 2020:9% 2021:12% 2022:15%		
Human Resource Management **Less than 30% of HR staff at all levels filled; EPI positions in the 23 new states are vacant.**	To achieve 100% EPI staff complement as per approved staffing norms at all levels by 2022	2019: recruit and fill in 60% of vacant posts 2020: recruit and fill in 70% of vacant posts 2021: recruit and fill in 80% of vacant posts 2022: recruit and fill in 100% of vacant posts		**1**

6. Strategies, Key Activities, and Timeline, 2018-2022

The strategies, key activities, and timeline are summarized in the following table.

Table 12: Strategies, Key Activities, and Timeline, 2018-2022

Programme objective	Strategy	Key Activities	Timeline				
			2018	2019	2020	2021	2022
Service Delivery		-Develop and update micro plans using bottom					
Increase and sustain Pentavalent 3 coverage from 59% in 2017 to 90% by 2022	Build capacity at State, County and health facility levels to implement REC strategies	up approach (Health facilities, counties states and National level)	X	X	X	X	X
		-Train staff on the use of micro-plans using the REC approach	X	X	X	X	X
		-Implement all the REC components	X	X	X	X	X
Increase proportion of counties with at least 80% coverage from 30%% in 2017 to 80% in 2022	Strengthen delivery of services with emphasis on increased outreaches and other mixed approaches	-Conduct IIP training for health workers	X	X	X	X	X
		-Conduct fixed, outreach and mobile sessions	X	X	X	X	X
		-Plan and conduct PIRI to boost coverage	X	X	X	X	X
		-Plan and use Rapid Response Missions to reach highly inaccessible areas	X	X	X	X	X
		-Use of private sector for delivering immunization services	X	X	X	X	X
		-Bi-annual EPI program performance reviews at National and state levels			X		X
		- Quarterly EPI program reviews at County level	X	X	X	X	X

Programme objective	Strategy	Key Activities	Timeline				
			2018	2019	2020	2021	2022
Reduce dropout rate from 23% in 2017 to ≤10% in 2022	Strategize to increase community awareness and participation	- Ensure Daily health talks on immunization in various OPDs and in communities	X	X	X	X	X
	Defaulters tracking and Dropout monitoring	-Provide and ensure correct use of child registers at all EPI service delivery points	X	X	X	X	X
		-Institutionalize follow-up of dropouts by all vaccinators using monitoring charts	X	X	X	X	X
	Reduce missed opportunities for immunization	-Defaulter tracing using social mobilizers and phone calls where applicable	X	X	X	X	X
		-Daily immunization at static units with screening for immunization status at outpatients clinics	X	X	X	X	X
		-Conduct IIP training for health workers-	X	X	X	X	X
Increase proportion of counties with at least 80% measles coverage from 34% in 2017 to 80% in 2022	Strengthen delivery of services with emphasis on increased outreaches by using mixed approaches	-Conduct fixed, outreach and mobile sessions	X	X	X	X	X
		-Plan and conduct PIRI to boost coverage	X	X	X	X	X
		-Plan and use Rapid Response Missions to reach highly inaccessible areas	X	X	X	X	X
		-Use of private sector for delivering immunization services	X	X	X	X	X
		-Annual EPI program performance reviews at National and state levels	X	X	X	X	X
		- Quarterly EPI program reviews at County-level	X	X	X	X	X
To increase MCV1 admin coverage from 75% in 2017 to	Build capacity at State, County and health facility levels to implement REC strategies	-Develop and update micro plans using bottom-up approach (Health facilities, counties states, and National level)	X	X	X	X	X
		-Train staff on the use of micro-plans using	X	X	X	X	X

Programme objective	Strategy	Key Activities	Timeline				
			2018	2019	2020	2021	2022
95%and sustain it by 2022		the REC approach -Implement all the REC components	X	X	X	X	X
Increase national routine TT2+ coverage from 49% in 2017 to 80% by 2022	Mainstream TT vaccination as a primary intervention in antenatal clinics	-Communication and sensitization of the schools and communities on immunization -Integrate TT into the existing WASH and Adolescent Sexual and Reproductive Health school program	X	X	X	X	X

Programme objective	Strategy	Key Activities	Timeline				
			2018	2019	2020	2021	2022
To achieve NNT elimination by 2022	Develop and implement an MNTE elimination plan based on risk assessment	-Conduct a comprehensive verification for NNT elimination		X			
	Strengthen NNT active surveillance by year 2019	Develop a case base surveillance system for NNT and strengthen NNT case-based surveillance at all levels	X	X	X	X	X
	Harmonise VPDs surveillance and IDSR						
Surveillance							
To integrate the existing AFP surveillance system and other VPDs into IDSR by 2019	Strengthen mechanisms for institutionalizing VPD surveillance	-Provide technical and financial support for integrated surveillance operational activities in all counties	X	X	X	X	X
		. Training of Polio Asset to include VPDs	X	X			
	Create institutional arrangements for using VPD surveillance data	- Integrate EPI target diseases within the IDSR framework	X	X			
		-Harmonize data base for both VPDs surveillance and IDSR	X	X			
To enhance the operationalization of surveillance certification committees for vaccine-preventable diseases by 2020		-Strengthening functionality of SSITAG, NCC/Polio and NTF/Laboratory containment of Polio	X	X	X		
		-Conduct Laboratory Containment	X	X	X		
		-Conduct Data Quality Audit/Self-Assessment		X			
		-streamline AEFI Surveillance system	X	X	X		

Programme objective	Strategy	Key Activities	Timeline				
			2018	2019	2020	2021	2022
Introduction of New Vaccines							
To reduce morbidity and mortality due to diarrhea and pneumonia; and to mitigate the risk of cervical cancer, meningitis and yellow fever	Introduction of new vaccines (PCV, Rota, YF and MenAVac), and MCV2	-GAVI/NUVI proposals submission	X	X	X	X	
		-Cold chain assessment for NUV storage	X	X	X	X	X
		-PCV (2020)			X		
		-Rota (2021) MCV (2021)				X	
		-YF (catch-up campaign & routine) (2022)					X
		-Men AVac (routine) (2020)			X		
		-Update EPI Policy and Guidelines appropriately	X				
		-Conduct immunization safety assessment					
		-Update Immunization in Practice Training Modules	X X	X			
Accelerated Disease Control							
To sustain and maintain WHO-certification of WPV free status by	Achieve and maintain high routine immunization coverage (90%) for OPV3	-Implement preventive and response nationwide polio campaigns	X	X	X	X	
		-Conduct regular WPV importation risk	X	X	X	X	X

Programme objective	Strategy	Key Activities	Timeline				
			2018	2019	2020	2021	2022
2020		Assessments at the borders/entry points					
		-Reviewing and updating the national polio preparedness plan	X	X			
	Conduct supplemental immunization activities	-Support NCC, NPERC and NTF	X	X	X		
		-Complete country documentation for WPV free-status to R.C.C		X			
	Strengthen disease surveillance for AFP	-Environmental surveillance for WPV	X	X			
		- Continue with polio transition plan	X	X			
	Switch from bOPV to IPV in RI by 2023	-Start preparation to switch from bOPV to IPV			X		
		-Advocacy Education and communication on the switch			X		
		-Adopt WHO guidelines on IPV administration			X		
		Complete the implementation of TT campaigns in high risk counties.					
To attain and sustain MNT elimination status by 2020	Evaluate progress towards MNT elimination	-LQAS for MNT elimination	X	X			
		-Initiate TT vaccination in schools to build population immunity to sustain MNT elimination			X	X	
	Initiate involvement of other Stakeholders in MNTE e.g. Reproductive Health, Ministry of Education, and other MCH partners		X	X			
		-Conduct follow-up campaign					
		-Conduct outbreak investigation and response reaching at least 95%.		x	x		
To reduce morbidity and mortality due to	Provide a 2nd opportunity for measles vaccination	-Strengthen the existing measles laboratory				X	X

Programme objective	Strategy	Key Activities	Timeline				
			2018	2019	2020	2021	2022
measles by half by 2020				X	X		X
	Outbreak response						
	Scale up case-based surveillance performance at State and	-Conduct fixed site and outreach vaccination	X	X			
	County levels	-Demand generation and social mobilization				X	
		activity	X	X	X		X
	Strengthen measles routine immunization					X	
			X	X	X		X
	Strengthen Surveillance and outbreak preparedness and response	-Improve the surveillance of Meningococcal meningitis					
To reduce morbidity and mortality due to Meningococcal Meningitis type A		-Awareness creation					
			X	X	X	X	X
	Strengthen Surveillance and outbreak preparedness and response						
			X	X			
<u>Cold Chain/Logistics</u>							
To establish a Logistics Management	Establish an effective and efficient logistics management	-Design, implement and maintain LMIS at all state vaccine stores	X	X	X	X	X
Information System	information system.	-Training on SMT	X	X			
(LMIS) in all states by 2020		-Conduct cold chain equipment inventory every year	X	X	X	X	X
		-Regularly update the cold chain equipment Inventory every 6 months.	X	X	X	X	X
To establish a national preventive and corrective cold chain maintenance system for EPI	Expansion and rehabilitation of the Cold Chain capacity at all levels	-Develop, cost and implement quarterly cold chain maintenance visits to all states	X	X	X	X	X
		-Develop and implement a procurement plan for CC consumables/supplies	X	X	X	X	X

Programme objective	Strategy	Key Activities	Timeline				
			2018	2019	2020	2021	2022
		-Installation of new cold chain equipment (CCOP) at county and health facility levels	X	X	X	X	X
		-Operationalize 3 regional cold chain hubs		X	X	X	X
To build an environmentally compliant cold chain system in the Republic of South Sudan at National and 3 States in 2019	Development and expansion of the National Vaccine Store capacity	-Construction of State cold chain in CES, NBG, Jong, Unity and UNL		X	X	X	X
		-Recruit and train at least one cold chain technician in each state.		X	X	X	X
		-Training of facility staff in the basic maintenance of cold chain equipment		X	X	X	X
		-Complete the construction of a NVS with 2 additional cold rooms installed		X	X	X	X
To strengthen the transport system for EPI logistics and field movement of EPI staff to deliver services by 2021	Establish an EPI transport system suitable for the context of South Sudan	- Maintain 12 Field operations vehicles by 2018	X				
		-Procure and maintain 2 vaccine delivery trucks by 2018	X				
	Effective distribution system for EPI vaccines and supplies by 2020	-Procure 4 quad bikes	X				
		-Rent motorboats		X	X	X	X
		-Air transportation	X				
	Strengthen routine vaccines and supplies distribution system at all levels	-Other suitable means (porters transporting vaccines and supplies etc.)		X	X	X	X
		-Develop and disseminate routine EPI vaccines distribution guidelines for South Sudan	X	X			
		-Develop and implement a monthly routine	X	X	X	X	X

Programme objective	Strategy	Key Activities	Timeline				
			2018	2019	2020	2021	2022
		EPI vaccines and supplied distribution schedule by 2018					
		-Monitor and supervise the distribution system	X	X	X	X	X
		-Provide Feedback at all levels	X	X	X	X	X
Expand the coverage and capacity of cold chain system at National, State, County and health facility level	Implement cold chain expansion (including CCEOP) and maintenance plan at National, State, County and health facility level	-Install 2 Freezer Rooms at NVS and replace existing equipment (non-CFC free)	X	X	X	X	X
		-Solarize at least 5 state cold chain facilities and reduce extensive dependence on generators	X	X	X	X	X
		-Implement CCEOP and other cold chain expansion efforts	X	X	X	X	X
		-Conduct ongoing preventive and curative maintenance of the existing CCEs	X	X	X	X	X
		-Increase the number and improve competency of national and sub-national cold chain technicians	X	X	X	X	X
Institute EVM as ISCL System Quality Improvement Tool at all levels: Update and Implement EVM Improvement Plan at National, State, County and health facility level	Conduct EVM for all levels of the ISCL System • Conducting annual EVM Assessment • Update EVM Improvement Plan • Monitor the implementation and impact of EVM IPs Update EVM Improvement Plan for National, State, County and	-Increase cold chain availability at county level from 68 (85%) to 80 (100%)	X	X	X	X	X
		-Increase number of health facilities with functional cold chain from 36% to ≥ 80%	X	X	X	X	X
		-Conduct EVM Assessment					
		-Develop/update EVM Improvement Plan for National, State, County and health facility level					
		-Support implementation of EVM Improvement Plan at National, State, County and health					

Programme objective	Strategy	Key Activities	Timeline				
			2018	2019	2020	2021	2022
Ensure injection safety practices for all immunizations	health facility level, and support implementation at all levels	facility level -Increase EVM performance for all indicators to ≥ 80% by 2021 for National, State, County and health facility level					
	Establish a functional Injection Safety Task Force	-Adopt a guideline for injection safety in South Sudan context	X				
		-Develop clear TOR for Injection safety taskforce and orient members	X				
		-Ministerial decree on the formation of the Injection Safety Task Force	X	X	X	X	X
		-Train all health workers in injection safety and waste management practices	X	X			
		-Ensure proper waste disposal (installation of incinerators in all counties)	X	X			
		-Development and dissemination communication materials on injection safety practices	X	X			
		-Monitor and supervise	X	X			

Programme objective	Strategy	Key Activities	Timeline				
			2018	2019	2020	2021	2022
Vaccine Supply and Quality							
To achieve 15% Vaccine Independence for traditional vaccines by 2022	Develop and implement a Vaccine Independence Initiative	-Develop and sign the Vaccine Independence Initiative agreement and ring-fence funds for vaccine procurement	X	X	X	X	X
		-Government to procure 5% of traditional Vaccines in 2020			X		
		-Government to procure 10% of traditional Vaccines in 2021				X	
		-Government to procure 15% of traditional Vaccines in 2022					X
To achieve 15% of expenditure on immunization financed from domestic resources	Resource Mobilization	-Resource mobilization plan for vaccine procurement	X	X	X	X	X
		-Advocacy for resource mobilization	X	X	X	X	X
		-Monitoring of utilization of mobilized funds by the ICC	X	X	X	X	X
To institutionalize vaccine quality assurance standards and practices	Develop and implement quality assurance SOPs	Strengthen the regulatory functions of the national regulatory body (Food and Drugs Control Authority) to monitor vaccine quality and safety	X	X	X	X	X
		Print and disseminate vaccine and injection materials control book to all levels and ensure proper utilization.	X	X	X	X	X

Programme objective	Strategy	Key Activities	Timeline				
			2018	2019	2020	2021	2022
		-Training of facility staff in the use of the tools. -Avail fridge tags at all levels with functional cold chain facilities -Monitor utilization of vaccine and injection materials control book	X X X	X X X	X X X	X X X	X X X
Advocacy and Communication To develop and implement a communication plan for immunization	Social and Behavior Change Communication (Demand generation and community engagement) Strengthen integration of community mobilizers network with BHI	- implement EPI communication plan based on the findings of 2017 KAP Survey -Production and dissemination of EPI communication materials including radios/telecommunication companies -Conduct a KAP study on immunization services utilization -Training of community mobilizers and equipping them	X X	 X	 X	 X X X	 X

Programme objective	Strategy	Key Activities	Timeline				
			2018	2019	2020	2021	2022
		-Harmonize Community Mobilizers Network with the Boma Health teams	X	X	X	X	X
		-Develop/adopt training manual/guidelines for health workers in IPC	X	X	X		X
		-Conduct TOT at national level and roll down to subnational level	X	X	X		
To achieve 50% of counties with health workers who are trained in IPC by 2019	Capacity building for communication for EPI	-Training of health workers in IPC	X	X	X		
To sensitize and use community structures on EPI services delivery in 100% of counties by 2020	Leverage the UNICEF C4D project to establish social and community networks for promotion of immunization activities	Community mobilization through HH visit					
		-Sensitization of religious, cultural and civil societies in EPI	X	X	X	X	X
	Building partnerships with the media and civil society for promotion of EPI activities	-Complete and regularly update social and community network maps and structures to inform micro plans	X	X	X	X	X
		-Conduct advocacy meetings with service organizations like Rotary, civil ssociety,Parliamentarians, local/traditional leaders	X	X	X	X	X
		-Orientation/sensitization of broadcasters, reporters and media managers	X	X	X	X	X
		-Sensitization of VHCs to include EPI in their routine health facility management meetings	X	X	X	X	X
		-Conduct community dialogue/sensitization shows to identify barriers to immunization	X	X	X	X	X

Programme objective	Strategy	Key Activities	Timeline				
			2018	2019	2020	2021	2022
		services utilization -Quarterly EPI partners coordination meetings at State and CHD levels	X	X	X	X	X
Programme Management To strengthen program management capacities at all levels for effective use of resources and improve on performance in 50% of counties, 70% of states by end of 2020	Update and ensure the utilization of EPI Policies, work plan and technical guidelines	-Disseminate and monitor the utilization of the EPI policies and guidelines with an addendum on NUV to all service points	X	X	X	X	X
		-Develop integrated annual work plan at all levels	X				
		-Monitor and supervise the implementation of the annual work plan using top-bottom approach.	X	X	X	X	X
	Strengthen supportive supervision at all levels and provide feedback on coverage, dropout rates and vaccine wastage	-Develop a comprehensive National and State levels supervision plans at all levels	X	X	X	X	X
		-Quarterly EPI supportive supervision visits to all counties	X	X	X	X	X
		-Training of state and county supervisors in EPI performance management	X	X	X	X	X
		-Bi-Annual EPI review meetings for states at the National level	X	X	X	X	X
		-Quarterly technical support supervision to every State using the whole site strategy and cross-exchange visits	X	X	X	X	X
	Disseminate and enhance use of monitoring and supervision guidelines at states and counties	-Training on Data Management and use for decision making	X	X	X	X	X

Programme objective	Strategy	Key Activities	Timeline				
			2018	2019	2020	2021	2022
		- conduct OPL and MLM training of EPI managers to 100% by 2020	X	X	X	X	X
		-Regular monitoring and supervision	X	X	X	X	X
	Strengthen operational research capacity at national and state levels, and promote use of research findings	-Conduct regular performance review for each level	X	X	X	X	X
		-Conduct operational research projects for improving EPI program efficiency and effectiveness	X		X		
Strengthening human and institutional resources To increase the EPI staffing strength by filling 100% posts as per approved staffing norms at all levels by 2022	Mass recruitment of skilled health workers for EPI and enhance capacity and promote motivation	-Initiate new cadre of disease control officers to phase-in the current low skilled staff	X	X	X	X	X
		-Recruitment and training of critical staff at national, state and county levels	X	X	X	X	X
		-Equip pre- and in-service health workers and mid-level managers with knowledge, skills and competencies in EPI service delivery	X	X	X	X	X
		-To institute a performance-based incentive package.	X	X	X	X	X
	Integrate Polio Assets into EPI	-Implement n-STOP to fill 60% of staffing gaps at national and state levels	X	X	X	X	X
		-Integrate the Polio staff into the BHI, EPI					

Programme objective	Strategy	Key Activities	Timeline				
			2018	2019	2020	2021	2022
		and IDSR	X	X	X	X	X
<u>Sustainable Financing</u> To achieve 15% of expenditure on immunization financed from domestic resources by 2022	Advocacy and continuous lobbying with key government stakeholders for increasing government budget for immunization Monitor financial releases supporting immunization activities Explore alternative sources for EPI financing	-Develop a financial sustainability plan for immunization in South Sudan -Develop implement and jointly monitor one business plan for immunization in South Sudan -Conduct High Level Advocacy for resource mobilization to high level political leadership -Implement State Specific Advocacy Missions for funds allocation from State Governments and Politicians -Conduct a cost-benefit and cost effectiveness studies for new and traditional vaccines -Track and report immunization expenditure	X X X X X	X X X X X	X X X X X	X X X X 	X X X X X

7. Costing and Financing for South Sudan Multi-Year Plan, 2018-2022

a. Macroeconomic Background

The Republic of South Sudan became the world's newest nation and Africa's 55th country on July 9, 2011. The country contains many natural resources such as petroleum, iron ore, copper, chromium ore, zinc, tungsten, mica, silver, gold, and hydropower. South Sudan economy is witnessing a period of decline as indicated by the sharp downward trend in the Gross National Income per capita from $1190 (2014) to $390 (2016) . The projection for the period 2019 – 2023 looks bleak as the average GDP per capita rate is expected to have a negative -4.6% growth. The weak economic base is manifested in poor infrastructural development such as poor road network which impairs the population to access socio-economic and health services including immunization. Institutional structures and capabilities for service delivery is still at its infancy, and as such will be requiring massive investment and support to make them robust enough to deliver on their mandate.

Funding for the health sector has been sub-optimal with the interventions and services not achieving levels that will reduce morbidity and mortality, thus creating the human capital essential for economic development and prosperity.

Table 13: Summary of Health Sector Funding Parameters in South Sudan

Indicators	2012	2013	2014	2015
Current Health Expenditure (CHE) per Capita in US$	25	26	29	28
Domestic General Government Health Expenditure (GGHE-D) as % Current Health Expenditure (CHE)	23	18	28	21
Domestic General Government Health Expenditure (GGHE-D) as % General Government Expenditure (GGE)	1.72	1.41	1.85	1.64

The Current Health Expenditure (CHE) per capita has been below $30 even for a period when the GNI per capita was $1190 and government health expenditure as a percentage of the government budget has consistently been below 2%. It is against this general background that the costing of the cMYP is done in order to quantify the investment requirement and funding prospect for immunization within the period 2018 – 2022.

b. Costing of the EPI Multi-Year Plan for South Sudan

This section outlines the costing of the 2018-2022 multi-year plan for immunization systems in South Sudan. Interventions and inputs into the program have been costed using the WHO tool for costing of multi-year plans. The data used in the costing tool was gathered at

national level, mostly from documents of the Ministry of Health, Ministry of Finance and Economic Development; and from other line Ministries, EPI program and from partners such as WHO and UNICEF, CDC/AFENET; USAID, Core Group, DFID/HPF and Gavi, The Alliance.

Personnel costs were based on available data from current salary scales of government as contained in circular No: 8/2016. Operational costs for routine and supplementary activities at all levels of service delivery, were based on past expenditures trends, adjusted for intensity of interventions as new strategies are defined to ensure increased routine immunization coverage. Procurement of vaccines and injection supplies is done by UNICEF and therefore UNICEF standard price projections were used for the costing. For the purpose of costing, programme costs were classified as routine recurrent costs, routine capital costs, supplemental immunization activities costs or other costs. As the programme goes through transition on the global polio eradication initiative, the cost of the transition of otherwise polio eradication activities have been migrated and reflected in the cMYP costing.

Routine recurrent costs include:
a) Vaccines (traditional, new and underused vaccines)
b) Injection supplies
c) Personnel
d) Transport
e) Maintenance and overhead
f) Training
g) Social mobilization
h) Disease surveillance
i) Programme management
j) Other routine recurrent costs.

Routine capital costs include:
a) Vehicles (replacement plan)
b) Cold chain equipment (expansion and replacement plans)
c) Other capital equipment (office).
Supplemental immunization activities (Campaigns) costs include:
a) Polio Supplemental immunization activities.
b) Measles Supplemental immunization activities.
c) Maternal and neonatal tetanus Supplemental immunization activities.
d) Meningitis A campaign Supplemental immunization activities.
e) Yellow Fever Supplemental immunization activities.

There are other costs which include: shared personnel costs, shared transportation costs and construction of new buildings.
From the past trend, the main cost drivers of the routine immunization program (excluding shared costs and campaigns) in the baseline year of the plan (2017) is indicated in table 14.

Table 14: Baseline Cost Profile for Routine Immunization

Baseline Cost Profile for Routine Immunization		
Cost category	2017	
Traditional Vaccines	$	409,761
New vaccines	$	2,412,554
Injection supplies	$	172,631
Personnel	$	1,726,659
Transportation	$	862,973
Other routine recurrent costs	$	13,858,119
Vehicles	$	-
Cold chain equipment	$	709,979
Other capital equipment	$	-
Supplemental immunization activities	$	11,862,552
TOTAL	$	32,015,227

From the analysis other routine recurrent cost (including traditional vaccines, new vaccine, injection supplies, personnel and transportation costs) account for 43% of the cost in 2017, followed by supplemental immunization at 37%.

Figure 13: Baseline cost profile (routine immunization), South Sudan, 2017

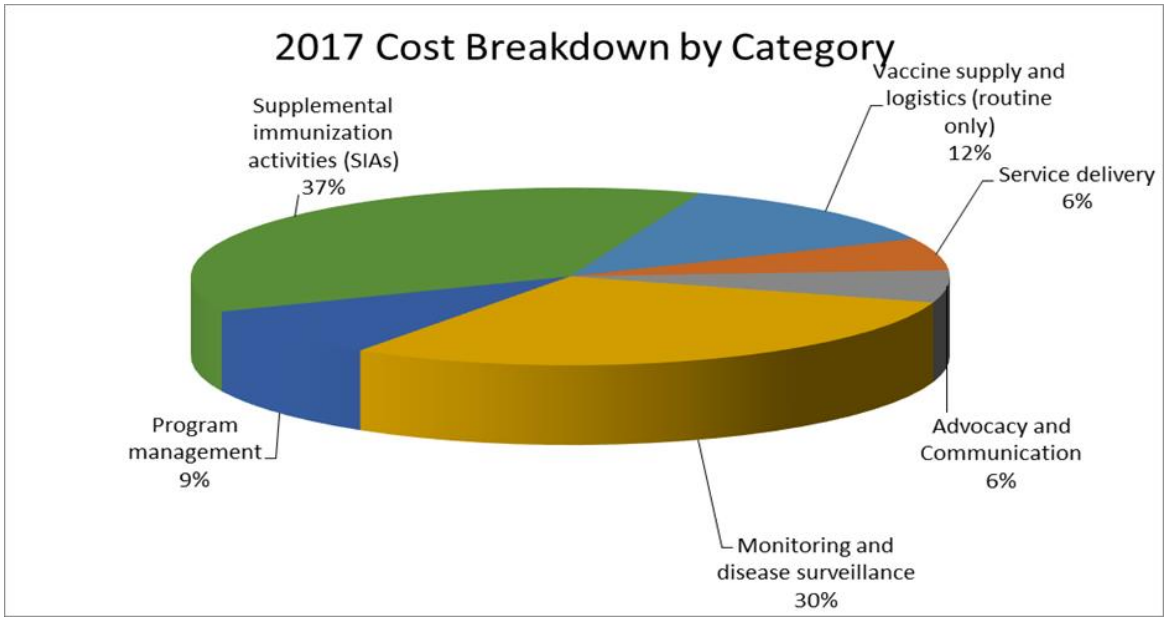
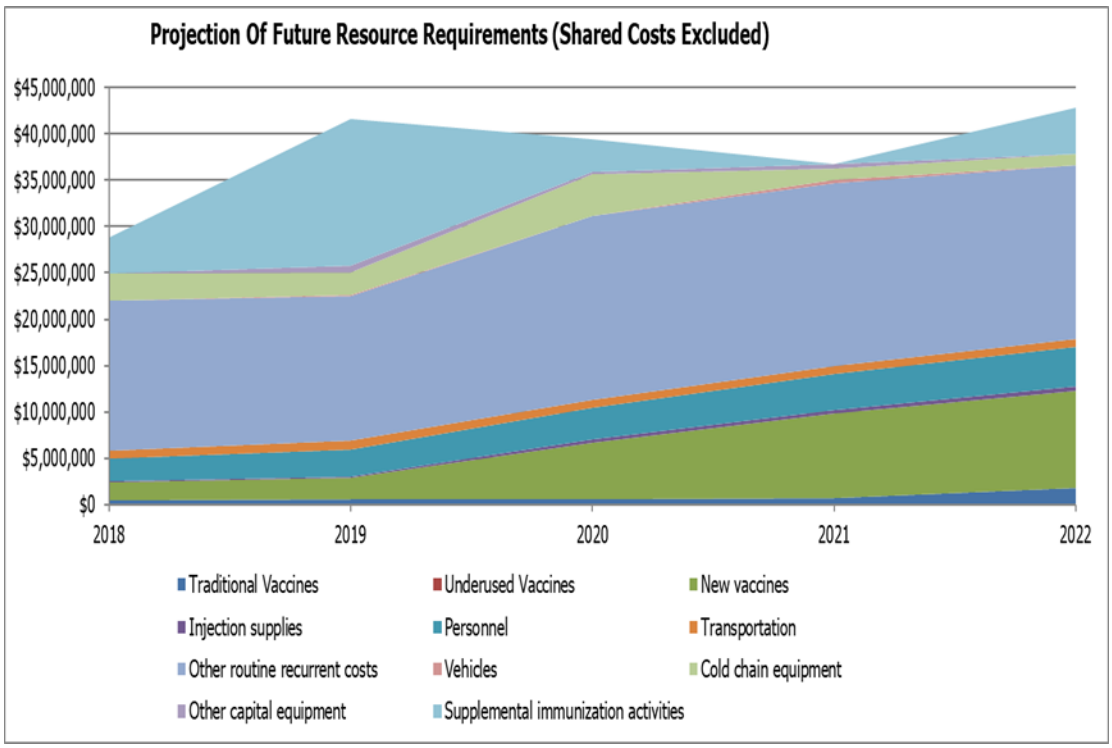


Table 15: Projection of future resource requirements for the 2018 - 2022

Projected Resource Needs, by Category						
	2018	2019	2020	2021	2022	TOTAL 2018 -2022
Vaccine supply and logistics (routine only)	$6,121,678	$7,264,112	$13,216,344	$14,025,410	$15,869,861	$56,497,404
Service delivery	$2,598,168	$2,802,706	$7,823,469	$3,477,520	$3,857,861	$20,559,723
Advocacy and Communication	$1,834,572	$1,803,637	$1,839,710	$2,147,112	$1,914,034	$9,539,067
Monitoring and disease surveillance	$10,570,631	$9,531,793	$9,101,622	$8,254,331	$7,559,830	$45,018,208
Program management	$4,192,421	$4,511,868	$8,681,796	$8,857,001	$8,693,035	$34,936,122
Supplemental immunization activities (SIAs)	$3,844,949	$15,911,979	$3,517,411	$0	$4,944,719	$28,219,058
Total direct costs	$29,162,418	$41,826,096	$44,180,352	$36,761,375	$42,839,341	$194,769,582
Shared Health Systems Costs (EPI Portion)	$51,081	$1,113,935	$892,298	$916,213	$1,070,449	$4,043,976
Grand Total	$29,213,499	$42,940,031	$45,072,650	$37,677,588	$43,909,790	$198,813,558

Figure 14: Projections of future resource requirements 2018- 2022



The total projected cost for the program ranges from USD 29, 213,499 in 2018 to USD43, 909,790 in 2021. The projection for the five years is USD 198,813,558 driven largely by vaccines supply and logistics at 28%. The increased cost of vaccines supply is attributable to introduction of new vaccines in 2020 and 2021. The cost profile shows monitoring and disease surveillance to account for 23%, and programme management (18%). Supplementary immunization share of the total cost is USD 28,128,058 (14%) which reflect the polio SIA, Measles SIA, TT and YF.

c. Financing of the EPI Multi-year plan for South Sudan, 2018 - 2022

Funding of the immunization programme in South Sudan has largely been through governments (central and sub-national) budgets as well as from partners and through donor's/donor projects. Partner agencies that have supported the program include WHO,

UNICEF, Gavi, CDC/AFENET, BMGF and DFID leading some other bilateral donors through the Health Pool Fund.

Funding during the baseline year (2017) indicate that Gavi funding (vaccine support and HSS) amounted to 34%, while WHO funded 30% of the cost, driven by the investment in monitoring and disease surveillance.

Table 16: 2017 Financing Profile for Routine Immunization (SIA excluded)

Donor	US$	%
Government Total	$1,740,000	10%
Gavi	$2,585,185	15%
Gavi CCEOP	$0	0%
Gavi HSS	$3,321,760	19%
WHO	$5,218,038	30%
UNICEF	$980,824	6%
World Bank	$0	0%
CDC/AFENET	$1,119,157	7%
DFID (HPF)	$946,059	6%
BMGF (McKing Consulting Corporation)	$1,202,370	7%
TOTAL	$17,113,393	100%

For future funding, It is expected that support from these agencies will continue during the next five years, although most of the funding can only be regarded as probable and likely to reduce in the later years as the common Humanitarian fund dwindles.

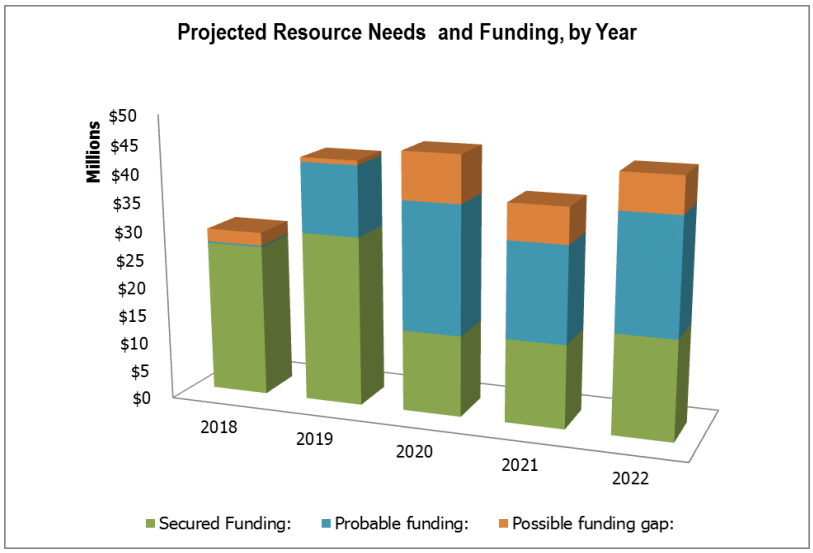
Table 17: Prospective Secured Future Funding by sources 2018 - 2022

Secured Funding:	2018	2019	2020	2021	2022
Government	$4,819	$0	$0	$0	$0
Gov. co-financing of gavi vaccine	$0	$0	$0	$0	$0
Gavi	$2,107,798	$7,152,374	$6,202,862	$8,824,407	$10,762,094
Gavi CCEOP	$2,999,616	$3,873,995	$5,933,633	$3,984,824	$3,566,481
Gavi HSS	$3,852,110	$1,870,800	$0	$0	$0
WHO	$7,088,004	$7,882,636	$0	$0	$0
UNICEF	$4,570,068	$5,429,818	$5,425,717	$279,977	$2,186,619
World Bank	$0	$0	$0	$0	$0
CDC/AFNET	$2,563,942	$610,024	$0	$0	$0
DFID (HPF)	$43,380	$0	$0	$0	$0
BMGF (McKing Consulting Corportation)	$1,202,370	$357,003	$0	$1,523,720	$0
Core Group	$2,542,531	$2,673,787	$1,454,509	$0	$903,277
Total secure funding	$26,974,638	$29,850,437	$19,016,721	$14,612,928	$17,418,471
Total resources needed:	$29,162,418	$41,826,096	$44,180,352	$36,761,375	$42,839,341
Funding gap	$2,187,780	$11,975,659	$25,163,631	$22,148,447	$25,420,870

In Table 17, the funding by agencies and partners as classified as secured funding is premised on the continuation of past trends. The funding gap represents probable funding for which additional efforts will be required in resource mobilization. For example, some activities and strategies are premised on Gavi HSS support. The current Gavi HSS grant

comes to an end in 2019. Consequently, it is envisaged that a successor Gavi HSS proposal will be developed and successfully funded to cater for such activities.

The projected funding for immunization programme in South Sudan is further presented in the pictogram below. The possible funding gap is prominent in 2020 – 2022, requiring concerted efforts to mobilise the needed resources from all sources including but not limited to the possible HSS successor grant and government funding sources but also developing new partner funding streams.

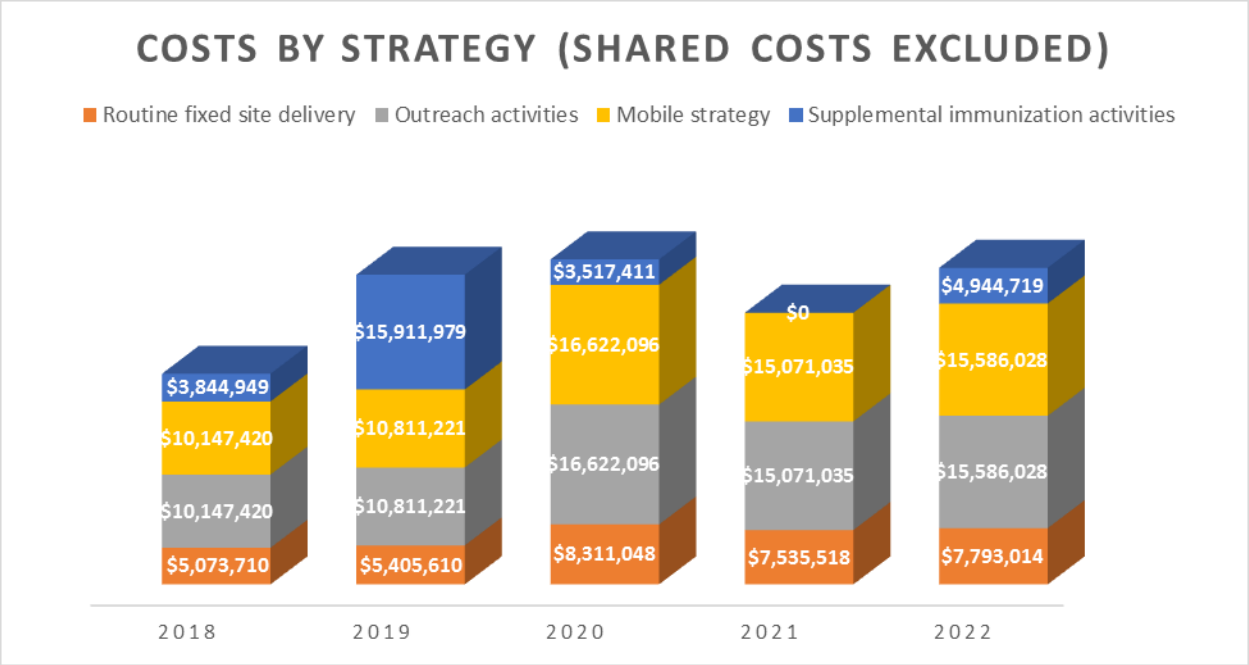


The Government of South Sudan is yet to fund vaccines, especially traditional vaccines and Gavi co-financing. Such funds that are expected from Government are equally classified as probable, requiring concerted efforts within government to assure the availability of funds to meet those commitments.

Table 18: Future Secure and Probable Financing and Gaps for EPI in South Sudan

Future Secure And Probable Financing And Gaps (Shared Costs Excluded)					
Secure + Probable Funding	2018	2019	2020	2021	2022
Government	$4,819	$176,950	$6,627,351	$364,443	$380,889
Gov. co-financing of gavi vaccine	$0	$0	$191,060	$709,214	$791,367
Gavi	$2,107,798	$7,152,374	$6,202,862	$8,974,407	$10,762,094
Gavi CCEOP	$2,999,616	$3,873,995	$5,933,633	$3,984,824	$3,566,481
Gavi HSS	$3,852,110	$1,870,800	$3,216,433	$3,623,121	$2,575,577
WHO	$7,088,004	$7,998,539	$4,177,209	$4,189,052	$8,074,554
UNICEF	$4,570,068	$11,538,211	$7,424,266	$3,513,011	$5,059,106
World Bank	$0	$65,000	$60,000	$90,000	$40,000
CDC/AFNET	$2,563,942	$2,320,024	$1,710,000	$1,221,600	$1,230,000
DFID (HPF)	$306,760	$3,073,354	$2,540,968	$2,289,605	$2,685,427
BMGF (McKing Consulting Corportation)	$1,202,370	$357,003	$1,124,650	$1,523,720	$477,307
Core Group	$2,542,531	$2,673,787	$1,454,509	$0	$903,277
Total secure funding	$27,238,018	$41,100,037	$40,662,941	$30,482,997	$36,546,079
Total resources needed:	$29,162,418	$41,826,096	$44,180,352	$36,761,375	$42,839,341
Funding gap	$1,924,400	$726,059	$3,517,411	$6,278,378	$6,293,262

In view of the current coverage of immunization and the desire to introduce new vaccines in South Sudan, the cMYP has taken into consideration strategies to accelerate the objectives.



As presented supplemental immunization as a strategy takes the lion share in 2019 due to the four rounds of polio SIAs, the measles and Td proposed SIAs.

The government of South Sudan will be required to pay Gavi Co-financing as indicated below.

Table 19: Expected Government co-financing amounts by Year

	2018	2019	2020	2021	2022	Total
DTP-HepB-Hib (2021)	$0	$0	$0	$341,759	$372,429	$714,188
Rota (2021)	$0	$0	$0	$110,480	$148,595	$259,075
PCV (2020)	$0	$0	$191,060	$256,976	$270,343	$718,379
Total						$1,691,641

It should be mentioned that the current waiver given to South Sudan in payment of co-financing on Pentavalent vaccine will come to an end in 2020. The country desires to introduce PCV in 2020, and will be required to pay co-financing of $191,060 for PCV in 2020. Furthermore, the country needs to plan for payment in co-financing for Pentavalent vaccine in 2021 added to that for Rota planned to be introduced in 2021. By 2021, the total co-financing payment to be made by government will be $709,214.

Table 20: Financing of Immunization in the macro-economic environment

MacroEconomic						
	2017	2018	2019	2020	2021	2022
Reference						
Per capita GDP ($)	360	360	360	360	360	360
Total Health Expenditures (THE) per capita	30	26	26	26	26	26
Population	12,601,591	12,979,639	13,369,028	13,770,099	14,183,202	14,608,698
GDP ($)	$4,536,572,760	$4,672,669,943	$4,812,850,041	$4,957,235,542	$5,105,952,609	$5,259,131,187
Total Health Expenditures (THE $)	$378,047,730	$337,470,607	$347,594,725	$358,022,567	$368,763,244	$379,826,141
Government Health Expenditures (GHE $)	$158,780,047	$87,742,358	$90,374,629	$93,085,867	$95,878,443	$98,754,797
Resource requirements for immunization						
Routine and SIAS (Campaigns include vaccines and operational costs)	$ 32,056,522	$ 29,213,499	$ 42,940,031	$ 45,072,650	$ 37,677,588	$ 43,909,790
Routine only (includes vaccines and operational costs)	$ 20,193,970	$ 25,368,551	$ 27,028,052	$ 41,555,239	$ 37,677,588	$ 38,965,071
Per DTP3 immunized child	$ 73	$ 88	$ 78	$ 102	$ 87	$ 85
Resource requirements for immunization % Of Total Health Expenditures (THE)						
Routine and SIAS (Campaigns include vaccines and operational costs)	8.48%	8.66%	12.35%	12.59%	10.22%	11.56%
Routine only (includes vaccines and operational costs)	5.34%	7.52%	7.78%	11.61%	10.22%	10.26%
Funding gap % Of Total Health Expenditures (THE)						
Funding gap (with secured funds only)		0.65%	3.75%	7.28%	6.25%	6.97%
Funding gap (with secured & probable funds)		0.57%	0.21%	0.98%	1.70%	1.66%
Resource requirements for immunization as % Government Health Expenditures						
Routine and SIAS (Campaigns include vaccines and operational costs)	20.19%	33.29%	47.51%	48.42%	39.30%	44.46%
Routine only (includes vaccines and operational costs)	12.72%	28.91%	29.91%	44.64%	39.30%	39.46%
Funding gap % Government Health Expenditures						
Funding gap (with secured funds only)		2.49%	14.44%	27.99%	24.06%	26.83%
Funding gap (with secured & probable funds)		2.19%	0.80%	3.78%	6.55%	6.37%
Resource requirements for immunization as % GDP						
Routine and SIAS (Campaigns) includesvaccines and operational costs)	0.71%	0.63%	0.89%	0.91%	0.74%	0.83%
Routine only (includes vaccines and operational costs)	0.45%	0.54%	0.56%	0.84%	0.74%	0.74%
Resource requirements for immunization Per capita						
Routine and SIAS (Campaigns) includesvaccines and operational costs)	$2.54	$2.25	$3.21	$3.27	$2.66	$3.01
Routine only (includes vaccines and operational costs)	$1.60	$1.95	$2.02	$3.02	$2.66	$2.67

Table 20 above indicates the financing of immunization with the macro-economic parameters to determine the sustainability of the programme. The data shows that resource requirement for the programme to function according to desired antigen coverage levels and vaccine delivery strategies for routine immunization (excluding SIAs) as a percentage of Total Health Expenditure will rise from 5.34% (2017) to high level of 11.61% (2020). The funding gap for the programme (routine and SIAs) as a percentage of Government Health Expenditure will rise from 20.19% (2017) to 47.51% and 48.42% in 2019 and 2020 respectively. This poses a challenge to programme sustainability in the face of previous trends in funding the health sector from government resources. Consequently, there will be the need to expand the space for government funding as well as increase the envelop of total resource availability to the programme. It is envisaged that strong resource mobilization efforts will be put in place targeting not only government sources but recruiting new partner sources while strengthening and keeping hold of existing partnerships.

Table 21: EPI Workplan for South Sudan, 2018

No.	Activity Description	Responsible Agency/ Person	Indicator	Budget Required (USD)	Funding source	Time Frame			
						Q1	Q2	Q3	Q4
1	**Partners and coordination**								
1.1 1.2 1.3	National level -Harmonize and align Partners plan with MOH through the authority of National, State and County Health Department; Aligning of target indicators by 1st quarter of every year Monitoring of performance indicators by TWG quarterly	MOH to coordinate & lead at all levels	. Joint annual plans developed and monitored by MOH and Fund managers;	$2,000 0 0	GAVI	X X X	X X X	X X	X X
1.4	Establish State/Hubs immunization working groups (building on SIAs mechanisms) ,	State Ministry of Health	Monthly Immunization working group minutes	$2,000	GAVI		X	X	
1.5 1.6	ICC and technical partners coordination meetings Maintenance of office plant and machinery for EPI	MOH	ICC meeting minutes	$	Core Group	X	X	X	X
2	**Programme Management and Financing**			**$**					
2.1	Introduce budget line item for vaccines procurement and co-financing (Parliament to advocate in supporting the MOH)	MoH	Budget line item created in MOH budget		GAVI		X	X	

2.2	Conduct bi-annual EPI performance review meeting (review performance jointly with partners) at national level	MoH	Report on joint review meeting on EPI	$	GAVI	X		X	
2.3	Institutionalize systematic and well planned supportive supervision to sub-national levels (monitor; Jointly with Ips)	MoH/WHO/UNICEF	Report on joint Supervision on EPI	$	GAVI, UNICEF,WHO	X	X	X	X
2.4	Finalize updated EPI policy, IIP module, MLM module adaptation	MOH/WHO/UNICEF	Updated EPI Policy guide, IIP and MLM modules	$	MOH/WHO/ UNICEF		X	X	
2.5	Use findings from all recent reviews to feed into updated cMYP 2018-2022; Review implementation of outstanding recommendations for action	MOH/WHO/UNICEF	Incorporation of findings in the cMYP	$	MOH/WHO/ UNICEF		X		
3	**Human Resources Management**								
3.1	Provide activity based (duty facilitating) allowances/incentives for Immunization service providers	UNICEF/HPF/MF	Proportion of functional outreaches	$	GAVI	X	X	X	X
3.2	Conduct Immunization in Practice Training on annual basis (track and document trainees)	MOH/WHO	At least in 80% HFs 2 Immunization officers	$	GAVI			X	X
3.3	Institutionalizing the development of short certified courses on Immunization /Surveillance or Communicable Disease control officers (institute performance evaluation for retention)	MOH, WHO & Training Institution	Curricula developed & incorporated	$	MOH/WHO		X	X	X
3.4 3.5	Mid-level management training for EPI managers Maintenance of cold chain human resources	MOH/WHO	Proportion of EPI managers trained	$	GAVI UNICEF/WHO				X

4	**Vaccine Supply and Quality**								
4.1	Institutionalize electronic vaccine stock management to improve vaccine management at State and County level	State MOH /UNICEF	Proportion of Counties without stock of vaccines						
4.2 4.3 4.4 4.5	Vaccine forecasting and procurement planning Vaccine receipt, storage and handling Vaccine Management strengthening (implementation of the EVM improvement plan) Vaccine distribution (all levels)	MOH/ UNICEF	Proportion of health facilities with stock-outs						
5	**Cold Chain, Logistics and Waste Management**								
5.1 5.2 5.3 5.1	Fueling the entire cold chain for South Sudan Cold chain replacement/ expansion for South Sudan Preventive and corrective cold chain maintenance Construction/Expansion of the Central Vaccine store	UNICEF Partners	Proportion of health facilities with cold chain Central vaccine store constructed			X			
6	**Service Delivery**								
6.1	Develop complete health facility micro plans in stable counties	State/County/HF/MOH/WHO	Proportion of counties with micro-plans	$	GAVI	X	X		
6.2	Approve and finance all EPI operations micro plans						X		

6.3	Develop and implement innovative strategies and plan to reaching the hard to reach, unstable, mobile populations (Outreach, mobile PIRI, RRM)	MOH/WHO/ UNICEF/ CIP	% children reached by each strategy	$	GAV/WHO	X	X	X	X
6.4	Focused support supervision and monitoring to poorly performing states/counties	MOH/WHO/UNICEF/Partners	Supervision report	$	MOH/WHO/ UNICEF/ CIP		X		X
6.5	Use every opportunity to integrate immunization with other MCH and Nutrition services to utilize the limited resource maximally and avoid missed opportunities	State/County/MOH/Partners	Services integrated	X		X	X	X	X
7	**Data management, coverage monitoring**								
7.1	Integration of sessions functionality monitoring in DHIS 2 and current EPI monitoring tool	MOH/HMIS/EPI	Harmonization of EPI monitoring tools using DHIS platform	$	MOH/WHO/ UNICEF	X	X	X	X
7.2	Develop, implement and monitor a multi-year data quality improvement plan	MOH/ Partners							
	VPD Surveillance and AEFI Monitoring								
8.1	VPD surveillance guidelines; Develop VPD surveillance guideline (include measles, Rubella/CRS and Neonatal Tetanus surveillance;	MOH/WHO	Developed, printed & distributed Integrated VPD surveillance guideline	$20,00	GAVI			X	
8.2	Develop AEFI surveillance guideline - Distribute			$10,00	GAVI			X	
8.3	Training of health workers on VPD Surveillance after dissemination of guidelines	MOH/WHO/Partners supporting surveillance	Integrated VPD surveillance guideline used to train,	$	GAVI/WHO				X
8.4	Develop concept note and identify Sentinel Surveillance sites to document disease burden targeted for new vaccines (Rota)	MOH/WHO	Site identified & focal points trained. Ssurveillance database generated	$	GAVI			X	X

8.5	Support the laboratory human resource, provision of kits for Surveillance (Measles, Meningitis, Rota) including staff incentives	MOH/WHO	Minutes of coordination/harmonization meeting; training provided	$	WHO/GAVI	X	X	X	X
8.6	Maintain certification level AFP surveillance standard and polio-free status	MOH/WHO/Partners	AFP surveillance indicators	$	WHO/GPEI	X	X	X	X
8.7	Update WPV importation preparedness and response plan		Revised plan available	$	MOH/WHO	X			
8.8	Continue risk mapping with a specific mitigation plan		Quarterly risk analysis and risk mitigation plan done	$	MOH/WHO	X	X	X	X
8.9	Organize NCC/NTF & NPEC committee meetings to early classify cases below 90 days and review progress of PEI and containment		#number of meetings with documented minutes. % cases classified with 90 days.	$ $	MOH/WHO MOH/WHO	X X	X X	X X	X X
8.10	Finalize the polio transition plan, conduct resource mobilization for implementation		Plan available including business case	$	UNICEF		X		
9	**Community engagement ; demand generation ; advocacy, social mobilization for immunization**								
9.1	Strengthen the Parliamentary Health Committees to advocate for Immunization and conduct annual briefing/accountability on Addis Declaration on Immunization to parliamentarians (more engagement)	MOH/ UNICEF	Annual briefing package for Parliamentarians; Dissemination to partners	$	MOH/UNICEF			X	
9.2	Engage the Community representatives with linkage to the social mobilization frame work in the HF micro planning	MOH /UNICEF	Proportion of micro plans session with community representatives involved	$	MOH/UNICEF	X	X	X	X

9.3 9.4 9.5	Develop a National advocacy and social mobilization plan Advocacy for EPI services planning and delivery Development, production and dissemination of EPI program communication and education materials	MOH/ UNICEF	Dissemination of EPI program communication and education materials	$					Jan 2018
10	**Accelerated Immunization Initiative**								
10.1	Adhere to quality SIAs standards preparation guided through use of SIAs readiness assessment by county, intra and post-SIAs RCM monitoring (Measles SIAs, TT SIAs, , YF SIAs)	MOH/ WHO/UNICEF/State/ County/Local partners	SIAs readiness assessment conducted by county to approve SIAs implementation, intense daily monitoring to conduct to assure quality; Safety standards maintained; Mop up conducted to minimize missed areas	$	MOH/WHO/ UNICEF	X	X	X	X